- - - Index to Contents, December, 1938 - - -

The Annual Index for Volume LIII appears on the last eight pages of this issue

Airports
Progress in Airport and Airway Development 13
Improvements at Stinson Field, Texas 13
Grading the Airport, Augusta, Ga. 13
Model Airport Planned for Washington, D. C. 13
Tractors and Scrapers Grade Airport 13
Hog Island Swamps Turned into Airport 13
Airport Lighting—When and How—II 66

Cartoons
The Calf-Path 40
The Swing to Polo 71

City Manager Plan
Recent City Manager Appointments 83
City Manager Plan at November Elections 93

Conventions
Conventions—When and Where 99

Finance and Taxation
Site-Value Taxation for London? 50
Must a City Pay State Sales Taxes? 74
Tax Valuation of a Utility 83
Mr. Olmsted Replies 83
The Municipal Bond Market 83
Voters Reject Most Tax Proposals 91

Fire Prevention and Control
100 Tons of Foam Powder 7
Fire Inspection in a Small Community 15
Enclosed Apparatus Preferred 42
Rubber Insulation for Wires and Cables 107

Forward Steps
Items Contributed by Officials and Others 75

Government and Administration
Organization of New York City Government 70
Needed—Municipal Statistical Offices 83
Eight Cities Pass New Civil Service Laws 91
City Manager Plan at November Elections 93
Centralized License Bureaus Approved 93

Health
Typhoid Bacteria and Sewage Treatment 11
Know the Truth About Venereal Diseases 75

Housing
Announcement from M. I. T. 39
Public Housing Upheld Again 52
The No-Man's-Land in Urban Housing 54
Realtors Stress Housing and Blighted Areas 56
Aid for New Homes by Canadian Housing Act 58
Schools Offer Housing Instruction 93

Legal Decisions
Zoning and Planning Notes 89
The City's Legal Rights and Duties 95

Libraries
Trailer "Bookmobile," Gary, Ind. 77

Licenses
Centralized License Bureaus Approved 93

Lighting, Outdoor
Carbide Floodlights Followed Hurricane 101
Carbide Flares Light New York City Dumps 107
A City Relights 100% in One Year 115
Safety Street Lighting for a Pleasure City 119
It's Time to Light Up 119

Motor Equipment
Grading the Airport, Augusta, Ga. 13
Tractors and Scrapers Grade Airport 13
Power Grader Is Chief Tool on Street Work 47
Street Cleaning, Tampa, Fla. 61
Highway Contractor Builds Own Distributor 103
New Gasoline Tractor 103
Special Features of 1939 Trucks 105
New Light Truck and New Diesel Engine 107
New Golf Tractor 107
New Line of Trucks Announced 113

News and Illustrations
Hints for Officials 101

Ordinances
Ruling Out House-to-House Peddling 98

Parking Meters
Parking Meters Work as Predicted 7
For 3,000 Parking Meters 15
Parking Meters: "Best Solution Yet Found" 73

Parks and Recreation
New Yacht Basin Built for Fort Myers 45
A Municipal Seashore Resort 51
Has Your Little City a Botanical Garden? 60
Civic Stadium Provides Modern Facilities 79
Pay-as-You-Go Park Program 81
New Golf Tractor 107

Planning
The Calf-Path 40
Combating Urban Blight 41
The Improvement of Clinton Square 43
Land-Use Maps, Massachusetts 62
Highway Widening Procedure Saves Millions 72
Zoning and Planning Notes 89
Twenty Small Cities Begin Planning Activity 93
Suburbs Included in Planning Programs 93

Police and Crime
If You Haven't Police Radio 7
Police-Radio System, White Plains 7
Police and Harbor Boats 103

Power Plants
Producing Kwh at Longmont 65
New Steam Turbine Centrifugal Pumps 105
Rubber Insulation for Wires and Cables 107

Publications
New Books and Pamphlets 97

VOL. LIII No. 12 — DECEMBER 1938

The American City

Issued Monthly by the
American City Magazine Corporation
470 Fourth Ave., New York
EDGAR J. BUTTENHEIM, Pres. & Mgr.
HAROLD S. BUTTENHEIM, Editor
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BRANCH OFFICES
Daily News Building, Chicago
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648 Hanna Building, Cleveland
GEORGE S. CONOVER, Vice-President
Mills Building, San Francisco
DUNCAN A. SCOTT, Representative

Subscription, $2 per annum in United States and Canada ($3 to foreign countries)
Single copies, 35c
Back numbers over 3 months old, 50c
Entered as second-class matter, July 29, 1910, at the Post Office at New York, N. Y., under Act of March 3, 1879. Printed in U. S. A.

In THE MUNICIPAL INDEX AND ATLAS (the annual reference volume of data and condensed catalogs published by the American City Magazine Corporation) readers will find statistical material, and articles on a wide variety of municipal and public works subjects, not published in the monthly issues of the magazine.

Public Utility Valuation
Tax Valuation of a Utility 83
Mr. Olmsted Replies 83

Public Works
Non-Federal Public Works 49

Radio
If You Haven't Police Radio 7
Police-Radio System, White Plains 7

Reports, Municipal
Making Municipal Reports Graphic 5

Safety
Is There a Better Word than Safety? 15
Accident Prevention in Personnel Service 81

Sewers and Sewage Disposal
Typhoid Bacteria and Sewage Treatment 11
Sewer Program Completed, Tallahassee, Fla. 11
Storm-Water Sewers in Stamford, Conn. 11
Modernistic Buildings for Sewage Works 11
Sewage Screening at St. Petersburg, Fla. 53
Sludge Dewatering Filters 55
Pay-as-You-Go Sewage-Disposal Program 81
A Hand-Operated Culvert Cleaner 105
New Magnetite Filter 109
New Testing Service for Leaks in Tanks 113

Street Cleaning and Snow Removal
Making Icy Streets Safe for Motor Traffic 48
Street Cleaning, Tampa, Fla. 61

Street Construction and Maintenance
Pavement Construction and Repair 44
Power Grader, Chief Tool on Street Work 47
Highway-Widening Procedure Saves Millions 72
Dust Collection Units for Asphalt Plants 101
Highway Contractor Builds Own Distributor 103

Street Signs
Dallas Likes Its New Street-Name Signs 75

Swimming Pools
Beloit's New Pool 57

Traffic Control and Facilitation
Keen Car Inspection by Minneapolis 15
Traffic Arrests 15
Tribute to Traffic Dead 15
Making Icy Streets Safe for Motor Traffic 48
Parking Lots: a New City Activity 59
It's the Same Old Problem in England 85
Accident Frequency on a New Highway 87
It's a Question 87
Safe Speed Signs Mark Ohio Curves 87
Deliberate Driving Safer Than Jumps 87
Zone-Marking Machine Operated by One Man 111

Transportation
Twelve-Passenger Bus 7
Transportation, Youngstown, Ohio 87

Waste Collection and Disposal
New Refuse Incinerator at Middletown, Conn. 38
The Swing to Polo 71
New Refuse Truck Compresses the Load 111

Water Supply and Water Works
17-Mile Pipe-Line Welded in Field 9
New Water Supply for Toledo, Ohio 9
The Removal of Fluoride from Water 9
Unit Cost of Pipe Laid in Wilmington, Del. 9
Twin Rapid-Sand Filtration Plants 35
Repairing Hurricane Damage to Water Works 64
New Slide Comparator for pH Control 101
Variable Capacity Deep-Well Turbines 103
Iron Removal Filters for Municipal Service 105
Water Pipe Repairs Described in Booklet 109
New 36-Inch Main Made 109
Meter Testing Plants for Water Departments 109
New Testing Service for Leaks in Tanks 113
Meter Company to Sell Simple Pipe Coupling 113

Waterfronts
New Yacht Basin Built for Fort Myers 45
A Municipal Seashore Resort 51

World's Fair
San Francisco in 1999 37

See pages 17, 18, 20, 97, 99 for catalogs and publications on municipal and civic subjects

For Index to Advertisements see page 122

IN COLUMBIA MISSOURI

COLUMBIA WATER AND LIGHT PLANT

UNIVERSITY OF MISSOURI

Columbia, Missouri, the county seat of Boone County, is a thriving, progressive city of 20,000 inhabitants. It was settled in 1821 by families migrating from Kentucky to find that this region "produced more and better blue grass than the richest soils" back home. The famous Daniel Boone was their forerunner by about 20 years.

In the region surrounding Columbia are dairy and truck farms, coal mines, stone quarries, and clay pits. Manufacturing includes flour, woodenware, shoes, brick, meat packing, smelting, and dairy products.

Columbia is the cultural and educational center of the state. Here are situated Stephens College, the largest Junior Girls' school in the world, and the University of Missouri, founded in 1839, just thirteen years after Columbia was incorporated as a city. A point of interest on the campus is a self-designed and inscribed monument of Thomas Jefferson, during whose administration the Louisiana Purchase was made.

MUNICIPAL BUILDING

Originally the water supply for Columbia came from a small creek nearby. Soon found unsatisfactory and inadequate, this was supplanted by deep wells. Now an abundant supply of pure water for the city's needs comes entirely from this source. The most modern and efficient equipment is employed including Pittsburgh Water Meters, which have made an outstanding contribution to the efficiency and economy of the entire system by their accurate and reliable performance.

PITTSBURGH EQUITABLE METER COMPANY

MERCO NORDSTROM VALVE CO.

NEW YORK · BUFFALO · PHILADELPHIA
KANSAS CITY · TULSA · LOS ANGELES

Main Offices - PITTSBURGH, PA.

DES MOINES · CHICAGO · COLUMBIA
MEMPHIS · OAKLAND · HOUSTON

PITTSBURGH WATER METERS

Making Municipal Reports Graphic

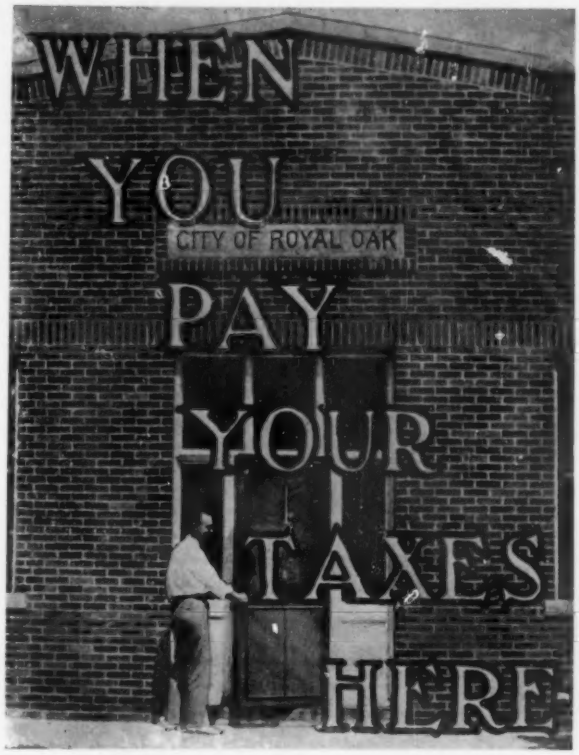
TWO effective devices increasingly used by municipal officials, for getting their reports read, are an attention-compelling front cover and "before and after" views in the body of the report. Typical examples are here reproduced.

When the flock of annual reports for the year 1938 begins alighting in THE AMERICAN CITY's office, we anticipate a larger percentage than heretofore of reports which are both readable and worth reading. In writing and preparing these documents for citizen consumption, officials will find many helpful hints in the International City Managers' Association's outline of suggested topics and units of measurement for reporting each municipal activity, just published in the pamphlet entitled "Specifications for the Annual Municipal Report," listed on page 97 of this issue.

The specifications point out that "the citizen is interested in good government, but he has troubles of his own. His patience is short and he is not an expert on city administration. If the report is to be read and digested by the citizen, it must be brief, attractive, simple, clear and understandable. It must be issued promptly, for it is news and not the history of city government."

Recommendations for the financial section include a condensed balance sheet for each fund, and a statement of revenues and expenditures. Other fiscal information recommended includes the level of taxes for city, county and state purposes; the city tax rate and tax delinquency. The section would show expenditures for debt service, the city's credit rating and bond prices, the schedule of debt retirement and the plan for debt reduction.

Other major municipal activities listed for coverage are: health service, parks and recreation, welfare, police, fire, library, public works, planning, housing and personnel.



ROYAL OAK, MICH., USED THIS PICTURE OF ITS CITY HALL ENTRANCE AS THE FIRST PAGE OF A LEAFLET ITEMIZING THE COSTS OF GOVERNMENTAL SERVICES TO TAXPAYERS IN VARIOUS VALUATION GROUPS

THESE VIEWS OF JAY STREET, BEFORE AND AFTER WIDENING, ARE ONE OF NUMEROUS EFFECTIVE FEATURES OF THE LAST ANNUAL REPORT, "YOUR CITY GOVERNMENT," OF THE CITY OF SCHENECTADY, N. Y.

"I'm Glad You Called"

This very hour, millions of words are being spoken by telephone. Friend talks to friend and two lives are happier because of it.

Greetings and best wishes are exchanged—holiday visits arranged—affairs of business transacted. A doctor comes quickly in answer to a hurried call.

And day and night, the country over, these oft-repeated words reflect the value of the telephone . . . "I'm glad you called."

BELL TELEPHONE SYSTEM

Do you mention THE AMERICAN CITY? Please do.

Our Municipal Notebook

Parking Meters Work As Predicted

IN the August edition of THE AMERICAN CITY a statement is made that no traffic survey, so far, has treated the subject of parking meters. As a matter of information, I wish to say that in the "Traffic Survey of the City of Norfolk," this subject is rather completely covered. Parking meters are recommended and a prediction is made as to the expected increase in curb turnover. A parking count made after the installation of meters fulfilled this prediction to all practical purposes.

L. W. TAZEWELL,
Director of Public Safety, Norfolk, Va.

TWELVE-PASSENGER BUS

Pony Cruiser on Ford 1-ton chassis for light-revenue inter-city business. The first vehicle, delivered to Short Way Lines, Toledo, Ohio, covered 480 miles per day and 23,000 miles in the first seven-weeks operation between Kalamazoo and Lansing, Mich.

If You Haven't Police Radio

POLICE radio from its very inception assumed the standing of an essential tool. By 1936, the municipal police departments thus equipped were counted by the hundreds; few cities of more than 100,000 population were without radio, and a great many below that figure had it. Then the two-way or talk-back began replacing the existing one-way systems where it can be used, and this activity now goes forward rapidly.

Meanwhile the city of Cleveland has been reorganizing its police department on the basis of abandoning its precinct stations in favor of police-radio-patrol districts, suggesting the far-reaching and revolutionary possibilities of police radio still to be realized.

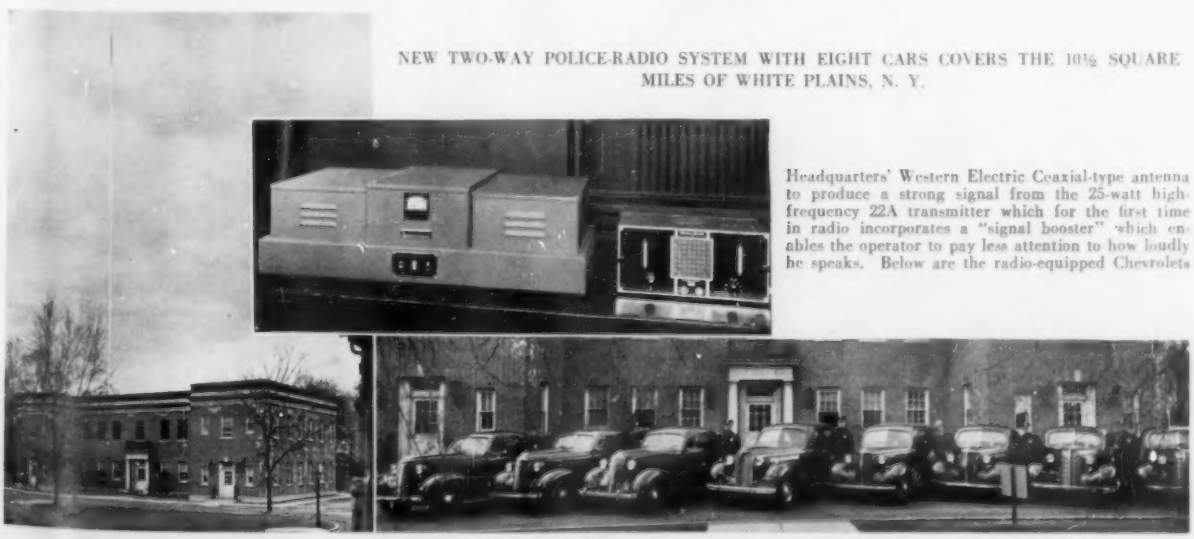
Though these are facts, there are still a number of municipalities which are not fully awake to the importance of police radio as the modern routine method of directing police activities as well as an efficient device for catching criminals and handling traffic. The success of the various courses in traffic control suggests that a well-considered free short course in police radio, or even a movie or a single lecture, might bring home to the many smaller communities the fact that police radio is one of the clear indications of probable police efficiency.

100 Tons of Foam Powder

THE Fire Department of Linden, N. J., recently had to contend with an oil-refinery conflagration which involved 29 large storage tanks. The ammunition required was foam powder, and 100 tons of it was used up in preventing the fire from spreading to the major part of the plant. This huge quantity was available only because of the proximity of warehouses of such producers as the Pyrene Mfg. Co., Newark, American-LaFrance & Foamite Industries, Inc., and the National Foam Co., as well as such supplies of foam powders as were owned by the eight oil companies and industrial plants in the neighborhood. Had those wholesale supplies not been at hand, much priceless time would have been lost in obtaining tons and tons of foam power, since a typical fire department feels it is adequately supplied if it possesses one or two tons. At a similar fire at Wellsville, N. Y., recently, foam powder had to be obtained from Elmira, 70 miles distant.

These two oil fires are tastes of catastrophe, and suggest that a basic requirement of a permit to establish such a plant should be the maintenance by it of, say, 20 tons of foam powder.

NEW TWO-WAY POLICE-RADIO SYSTEM WITH EIGHT CARS COVERS THE 10½ SQUARE MILES OF WHITE PLAINS, N. Y.



Headquarters' Western Electric Coaxial-type antenna to produce a strong signal from the 25-watt high-frequency 22A transmitter which for the first time in radio incorporates a "signal booster" which enables the operator to pay less attention to how loudly he speaks. Below are the radio-equipped Chevrolets

Elevated Storage Improves Water Service

THE 1,500,000-gallon Horton radial-cone bottom elevated tank shown below has been in service in the Manitowoc, Wisconsin, waterworks system since last July. One of the most important improvements that have resulted from this installation is the relatively uniform pumping rate that was effected after the tank was connected to the system.

Important, too, is the large reserve made possible by this new tank, which assures the city of adequate fire protection. These are typical benefits that are possible through the use of modern elevated storage. Address our nearest office for information or quotations on elevated storage tanks to fit your requirements.

CHICAGO BRIDGE & IRON COMPANY

Chicago.....2127 Old Colony Bldg.
New York.....3308-165 Broadway Bldg.
Cleveland.....2236 Rockefeller Bldg.
Detroit.....1501 Lafayette Bldg.
Philadelphia..1616 "1700" Walnut St. Bldg.
Boston.....1501 Consolidated Gas Bldg.
Birmingham.....1502 N. Fiftieth Street
Dallas.....1406 Liberty Bank Bldg.
San Francisco.....1033 Rialto Bldg.
Houston.....2919 Main Street
Tulsa.....1625 Hunt Bldg.
Los Angeles.....1403 Wm. Fox Bldg.

Fabricating plants in CHICAGO, BIRMINGHAM, and GREENVILLE, PA.

Water Mains and Water Treatment

17-Mile Pipe-Line Welded in Field

THE first section of the Palos Verde feeder, a pipe-line which will eventually deliver water to the cities of the Los Angeles Harbor area of the Metropolitan Water District of Southern California, will be a 17-mile underground conduit of cement-mortar-lined and gunite-covered welded steel pipe, with diameters of 51 and 55 inches, made up in 30-foot lengths. The J. F. Shea Co., Inc., contractor, has made excellent speed at considerable savings, using fifteen General Electric 300-ampere, gasoline-driven, arc-welding sets to weld the pipe sections into a continuous and leak-proof duct in the field. Each generator is equipped with remote control, permitting adjustment of the welding voltage at the work, thus making it unnecessary for the operator to climb out of the trench when a voltage change is required by a change in welding position. This saves a great deal of time and is especially important when the trench is deep or when an operator is working inside the pipe at a point several hundred feet from a manhole. The contractor estimates that only one hour and twenty minutes is required for the complete welding, both inside and outside, of one of these big pipe joints.

The pipe has a thickness of 3/8- to 15/32-inch and is designed to handle a head pressure of 350 to 450 feet. It is coated inside with centrifugally spun mortar, and outside with a special gunite protective coating adapted by engineers of the Metropolitan Water District. After the heavy sections of steel pipe are swung into place by gasoline-driven dragline units, the joints are welded and a field application of the protective coating applied to them. Current is carried to the point of welding inside the pipe through 3-inch flanged openings in every fourth section of pipe. As the welding is completed, it is a simple matter to plug the small openings, weld the plugs, and apply the protective coating to these small areas.

New Water Supply for Toledo, Ohio

BY a vote of more than nine to one citizens of Toledo on August 9, 1938, approved an ordinance of the City Council providing for the financing of a $9,200,000 water-supply development which will use Lake Erie as the future source of supply for Toledo. A PWA grant of approximately $3,000,000 will assist in the financing of the project.

The remainder of the financing will be by the issuance of $3,600,000 of mortgage revenue bonds, use of $750,000 of cash surplus available in the Water Department, and nearly $1,000,000 of bonds already authorized by the City Council in connection with WPA and PWA projects which fit into the new water system. The project will employ 2,138 men for at least 18 months.

The maximum annual cost of interest and principal payments under the improvement program is estimated at $243,518 under an equalized payment plan, while the average net income of the system applicable to such charges in the last four years has been $345,687. Therefore, citizens believe, according to "Today in Toledo," published by Toledo Associates, that no increase in water rates will be required to carry the project.

Savings of $300,000 annually in soap and water softener costs are estimated as the result of the use of the softer lake water. Health hazards will also be reduced, for Lake Erie water tested near the area to be used contains only two per cent of the pollution that Maumee River water carries. This will reduce the cost of treatment and filtration.

Toledo's new water system is being designed for the needs of a city of 550,000 population, while the present population is 325,000.

The Removal of Fluoride from Water

THE importance of removing excess quantities of fluoride from drinking water because of the damage caused by this chemical to teeth has led to considerable research work on the subject. Reprint No. 1860 from the Public Health Reports of the U. S. Public Health Service contains a paper by Elias Elvolve, Senior Chemist, U. S. Public Health Service, on this subject.

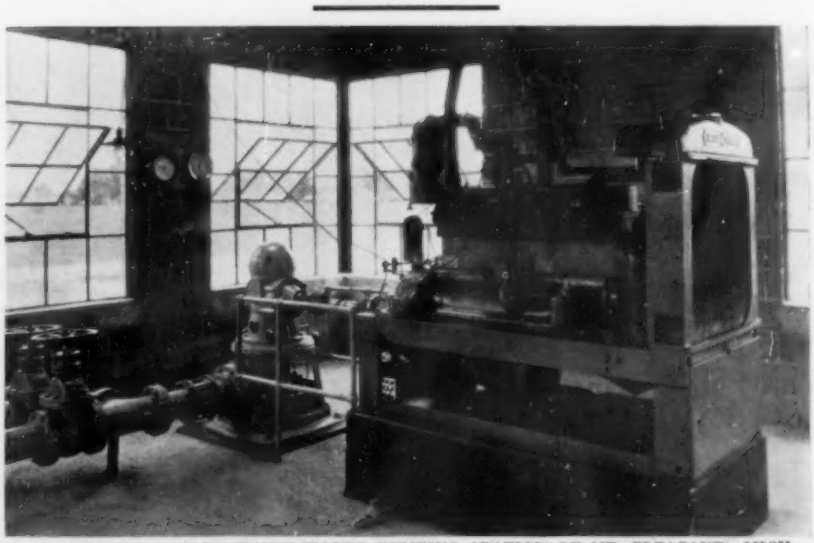
In the summary of the paper Mr. Elvolve states that the results of his research indicate that fluoride can be removed from water with the aid of tricalcium phosphate, magnesium oxide, or magnesium hydroxide. Since the question of cost is very important, and since, at present, magnesium oxide appears to be the least expensive, experiments were conducted mostly with this substance. Different grades of commercial magnesium oxide showed different degrees of fluoride-removing power. Although a commercial light magnesium oxide was found more efficient as a fluoride-remover, per given weight, than a commercial calcined magnesite, its greater efficiency was not proportional to its present higher cost. From the point of view of economical operation, much work remains to be done. It is pointed out, however, that in the case of calcined magnesite particularly, since it is used extensively in building operations and for various other purposes, it may be possible to utilize the material after its availability for fluoride removal has been exhausted, and thus indirectly reduce the cost of treatment. Such utilization would add another advantage to the advantages of commercial availability in large quantities and comparatively low initial cost.

—The reprint referred to may be secured from the U. S. Government Printing Office, Washington, D. C., at 5 cents per copy.

Unit Cost of Pipe Laid in Wilmington, Del.

THE following short table shows the unit cost of pipe laid in the fiscal year 1936-1937 by the Board of Water Commissioners of Wilmington, Del., and is reproduced from the 68th Annual Report of the Chief Engineer of the Water Department to the Board of Water Commissioners:

Size in Inches	Feet Laid	Total Cost	Cost Per Foot
16	1,787	$9,000.54	$5.04
12	1,857	6,297.94	3.39
8	39,722	95,284.55	2.40
6	1,742	2,456.25	1.41
4	1,468	2,549.87	1.74



THE INTERIOR OF THE WATER-WORKS PUMPING STATION OF MT. PLEASANT,, MICH. This International PA-100 power unit delivers 110 hp at 1,400 rpm, using gasoline and 103 hp on gas. It drives a Layne pump handling 720 to 740 gpm, supplying this city of 9,000 population

MATHIESON CHLORINE SERVES LINCOLN SEWAGE PLANT

Says Wardner G. Scott, Engineer, Sanitary District Number One of Lancaster County, Nebraska:

"The quality of Mathieson Liquid Chlorine, together with the prompt service on shipments has been entirely satisfactory at all times."

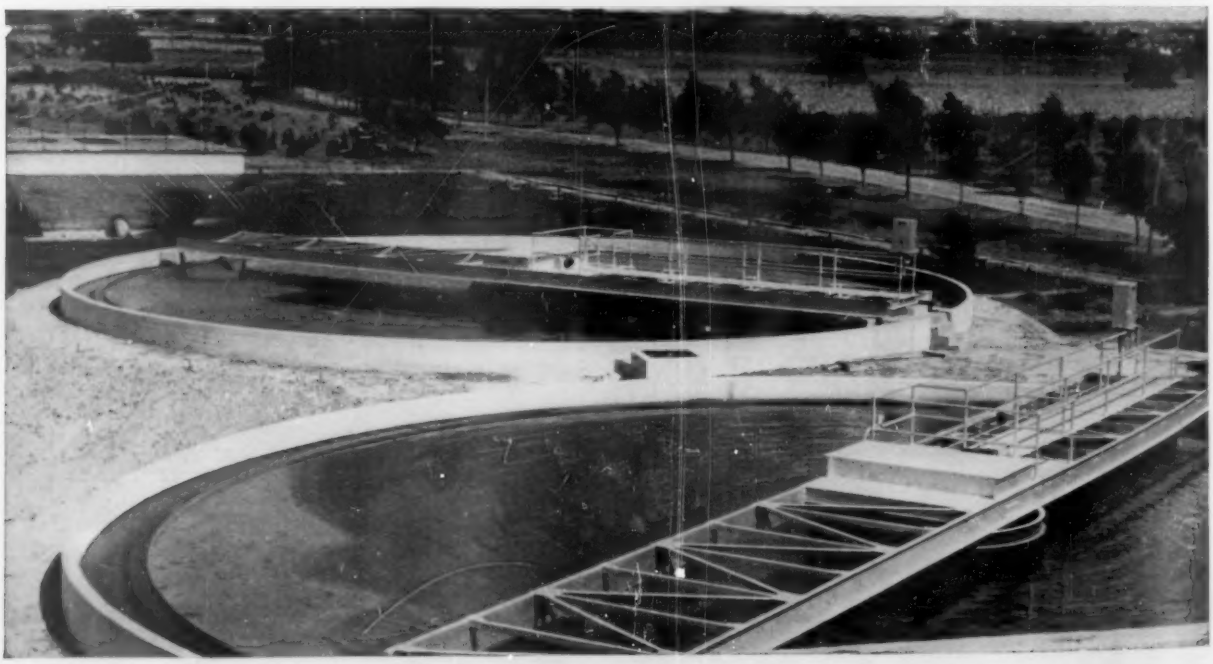
ABOVE all else, whether the job in hand be water purification, sewage treatment or swimming pool sanitation, your supply of liquid chlorine must be dependable. You have a right to expect at all times a pure product, trouble-free containers and valves, prompt delivery service.

At Lincoln, Nebraska, where the sewage treatment plant uses chlorine in ton containers, Mathieson Liquid Chlorine has been proving its dependability over a period of years. As Mr. Scott states, he has found the quality of the product and the prompt service on shipments entirely satisfactory at all times.

Because so many sanitary officials have had the same experience as Mr. Scott, they have learned to specify Mathieson whenever there is a chlorinating job to be done.

The MATHIESON ALKALI WORKS (Inc.)
60 East 42nd Street **New York, N. Y.**

Soda Ash . . . Liquid Chlorine . . . Bicarbonate of Soda . . . HTH and HTH-15 . . . Caustic Soda Bleaching Powder . . . Ammonia, Anhydrous and Aqua . . . PH-Plus (Fused Alkali) Dry Ice (Carbon Dioxide Ice)



Sewers and Sewage Treatment

Typhoid Bacteria and Sewage Treatment

A SERIES of studies on the survival of typhoid bacteria, *E. typhi*, in existing sewage-treatment processes has been made by Carl E. Green and Paul J. Beard, State Sanitary Engineer, Portland, Ore., and Associate Professor of Sanitary Sciences, Stanford University, Calif., and reported in the June, 1938, issue of the *American Journal of Public Health*. These quantitative studies of the behavior of *E. typhi* in sewage and sewage-treatment processes confirmed the findings of early investigators and the longevity of the typhoid bacillus in sewage. It has been shown that a rapid decrease occurs for three or four days, after which survivors may persist for several weeks. The influence of temperature was noted as by other investigators, survival time being longer at lower temperatures.

Under conditions simulating a septic tank, it was found that 2 or 3 per cent of the typhoid organisms survived for four days both in the supernatant and in the mixed contents of the container. After the four-day period there were fewer survivors in the supernatant, though they were isolated in 1-ml portions for 24 days. They were still found in 0.1-ml portions of the mixed sludge, scum and supernatant through 27 days.

Experiments with activated sludge indicate that a reduction of 90 to 99 per cent in typhoid organisms can be expected during 6 hours aeration, and that in most instances only 1 to 3 per cent will survive. An experiment with activated sludge heated sufficiently to destroy or inactivate all protozoa and non-spore-forming bacteria indicated that biological activity and not aeration *per se* is responsible for the reduction in *E. typhi* in activated sludge. An increase of *E. typhi* occurred during 3 days of aeration of the previously heated sludge. A control batch showed a normally expected decrease during the same time. No tests were conducted on the survival of *E. typhi* during the digestion of activated sludge.

In the studies reported, a trickling filter operating intermittently at effective rates up to 2.8 mgad removed 99.9 per cent of typhoid organisms in sewage. Reductions of 96 to 99 per cent were secured at constant dosage rates up to 6.6 mgad and a 95 reduction at 12 mgad. With alternate dosing and resting cycles, high concentrations of typhoid organisms were added for one or two minutes but with few viable organisms passing through the bed.

Considering the possibility of sampling errors involved in experimental work of this kind, the data secured seem surprisingly consistent, and the curves of *E. typhi* counts in the influent and effluent are reasonably parallel, allowance being made for lag in passage through the filter.

It is apparent that two commonly used processes for secondary biological treatment of sewage, namely, activated sludge and trickling filtration, may be expected to reduce greatly typhoid organisms present in sewage, and are therefore effective barriers for the protection of public health.

Attend Your Local Sewage Works Meeting

See the convention list of THE AMERICAN CITY each month for dates.

Tallahassee Completes Large Sewer Program

EARLY in 1938 Tallahassee, Fla., completed a large sewer extension program as a PWA project, so that all the outlying sections of the city are now connected to the sewerage system. The project was a contract activity in which the city's contribution was $146,531 and the Federal PWA grant was $119,000. The work was done by the Boyle Road and Bridge Co., of Sumter, S. C. A total of 228,121 feet of sewer was laid in sizes from 6-inch to 21-inch, all vitrified clay pipe, in trenches varying from 1 to 23 feet in depth, all in unpaved streets. As most of the work was in a clayey soil only a small amount of safety bracing was required, but sheeting was used in all the work laid around the lakes in the city.

This extension to the sewer system added nearly 6,000 population to the sewered population of 10,000. The Imhoff sewage-treatment plant of the city built in 1933 is large enough to care for the sewage of a population of 25,000. The sewerage project was started January 9, 1937, and completed January 11, 1938.

MILLER WALSTON,
City Engineer.

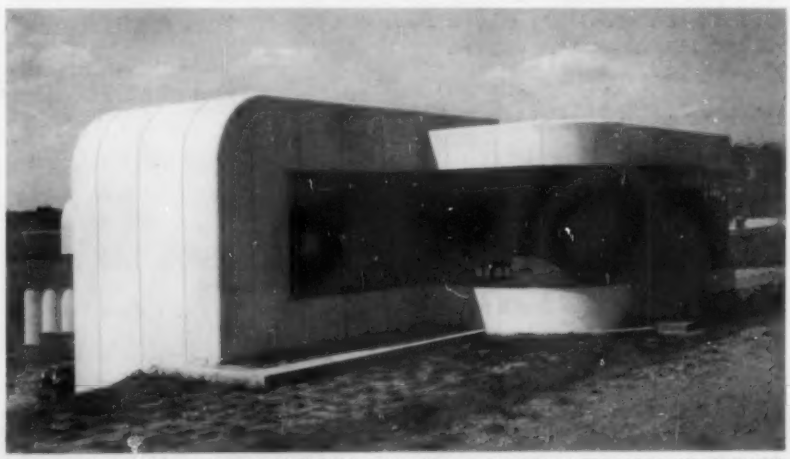
Modernistic Buildings for Sewage Works

AUSTIN is the latest Texas city to provide complete treatment for its sewage. A new half-million-dollar plant, put into operation during 1937, was financed by revenue bonds plus a $150,000, or 30 per cent, grant from PWA. The new plant uses the activated sludge process of treatment and is modern in every respect, the control buildings being of modernistic design in architectural concrete.

The new treatment plant has a capacity of 12,000,000 gallons daily and is situated on a 31-acre tract along the east bank of the Colorado River, into which the effluent flows. Raw sewage enters the plant through a new 36-inch reinforced concrete outfall. Then it is measured by a venturi meter, after screening to remove sticks, rags, and similar objects, and then passes through the grit chamber and into the primary clarifier, where the heavier solids settle. The sludge is pumped to the digesters while the effluent flows through a flume to the aeration tanks. The sewage is aerated in a series of four tanks, two being used for primary and two for secondary aeration. Besides the clarifier that removes heavier sediment and grease, the plant has two tanks for final clarification. The sludge beds occupy an area approximately 200 feet by 325 feet.

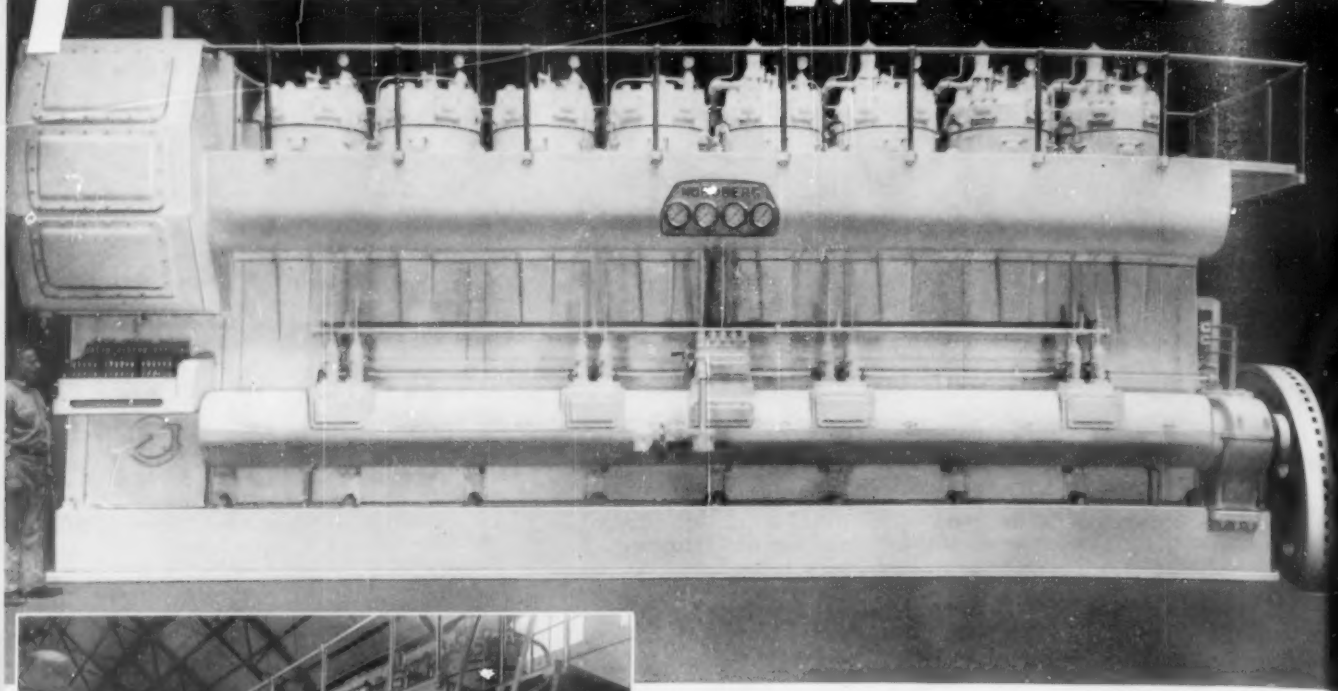
By-product sludge gas is collected and used for heating the treatment plant buildings. The final effluent is carried to an outfall pier located several feet from shore.

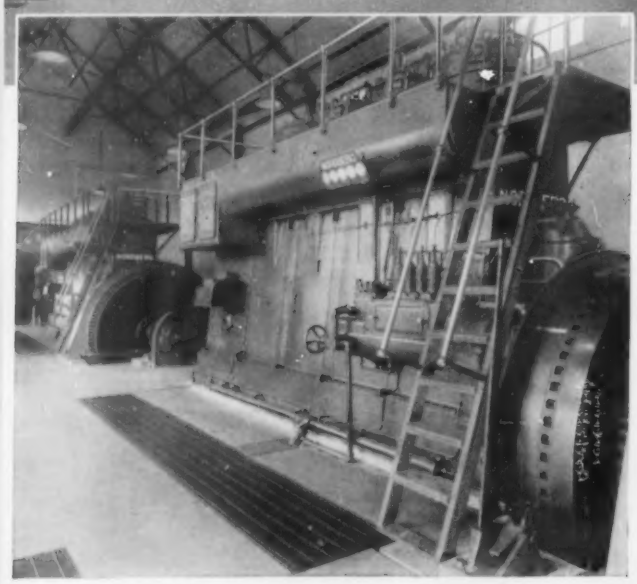
The treatment plant was designed by C. G. Levander, Assistant City Engineer of Austin, and Hawley, Freese and Nichols of Fort Worth, Texas, acted as Consulting Engineers. The architectural concrete control buildings illustrated were designed by L. C. Page, G. S. Moore and L. M. Hamby of the City Engineer's staff. Brown & Root was the contractors.



THE OFFICE AND CONTROL BUILDING OF THE NEW ACTIVATED SLUDGE SEWAGE-TREATMENT PLANT, AUSTIN, TEXAS

POWER AT 4½ MILLS





At the top is shown the new eight cylinder, 2000 horsepower unit. Below is the original installation of 1000 and 1450 horsepower engines.

Nordberg's extensive line of two and four cycle engines in a wide range of sizes permits the selection of a proper type and size for any service.

The municipal power plant at Greenville, Texas, has established a record for producing low cost power with Diesel engines in this country. The operating report for 1937 shows that the two Nordberg Diesels, installed in 1933, generated 6,720,110 K.W. at a cost of 4½ mills per K.W. hour. Included in this cost are the items of labor, fuel and lubricating oils, maintenance, supplies and incidentals. In addition to the efficient operation of Nordberg Diesels, low maintenance was also a factor contributing to this low cost production. For the year, maintenance for the two engines was only $621.58. This unusual performance is even more significant when consideration is given to the unfavorable load factor of but 40 per cent.

After five years of faithful service with Nordberg Diesels at Greenville, when the need arose for additional generating capacity last year, another Nordberg engine, one of 2000 horsepower, was installed and which is now in service. This is just one more instance of a satisfied user continuing to purchase Nordberg Diesels on the basis of past performance.

NORDBERG MFG. CO., MILWAUKEE, WIS.

NEW YORK	WASHINGTON	CLEVELAND	KANSAS CITY	DALLAS	LOS ANGELES
60 E. 42nd St.	Barr Bldg.	318 Rockefeller Bldg.	3560 Broadway	3801 Potomac Ave.	Subway Terminal Bldg.

NORDBERG DIESELS

Municipal Airports — Aviation

Progress in Airport and Airway Development

NEW projects have been added to the network of airports and airways at the rate of one every week-day during the first eight months of the fiscal year ending June 30, 1938, according to a report from the Works Progress Administration. From June 30, 1937, through February 28, 1938, the number of projects in operation increased from 940 to 1,164. Airport work was begun during this period on 41 new sites, increasing the total number from 567 to 608. Federal expenditures for this work amounted to $16,811,635.

Altogether, the WPA has expended $80,522,277 of Federal funds through February 28, 1938, on the construction and improvement of airports and airways. The CWA and FERA spent $24,000,000 on a similar program.

In addition to other benefits of this program, designed primarily to serve civilian peace-time needs, Major General Oscar Westover, Chief of the Air Corps, U. S. Army, has reported that "the airport program of the Division of Airways and Airports, Works Progress Administration, is making a vast and important contribution to the national defense through its provision of ground facilities."

Improvements at Stinson Field, Texas

STINSON FIELD, the municipal airport of San Antonio, Texas, was purchased by the city a number of years ago, the original expenditure being about $30,000, exclusive of the land. Two years ago considerable work was completed at a cost of $130,000, including a new administration building and general improvements on the field. At the present time, approximately $210,000 is being spent on additional improvements, including new runways and their surfacing, complete lighting equipment, channel changes, and regrading and draining the field.

In this program no new equipment is being purchased except the lighting system. The runways when completed will be 4,850 feet long and 150 feet wide.

H. J. WILSON,
Airport Engineer.

GRADING THE AIRPORT OF DANIEL FIELD, AUGUSTA, GA.
The average haul for this outfit, an Allis-Chalmers Model LO tractor and Gar Wood scraper, was about 1,000 feet, and it delivered 90 yards an hour for 12 hours a day

Model Airport Planned for Washington, D. C.

PLANS for a 750-acre air terminal which is expected to solve not only Washington's long hanging airport problem, but to serve as a model for the nation at large has been announced by the Civil Aeronautics Authority. The new airport will be located at Gravelly Point, a mile down the Potomac River from the Washington-Hoover airport. This site was selected after an exhaustive survey of the entire Washington area to determine the most advantageous point for a close-in field serving the capital. It is scheduled to be ready for service by October, 1939, and the entire project is slated for completion at the end of 1940.

The undertaking is contemplated as a joint project participated in by PWA, WPA, the Army Engineer Corps and the Civil Aeronautics Authority. A staff of skilled engineers engaged for the last year in the development of the North Beach municipal airport for New York City will probably be made available to prepare detailed plans for the Gravelly Point project.

The site selected for this model air terminal is 3.5 miles, or 10 minutes, from the Post Office Building, and the area to be developed includes approximately 750 acres, of which 500 acres will be "made" land to be derived from dry fill and dredging. Unlike the capital's present airport, which is subject to floods, the finished surface of the Gravelly Point field will be above flood stage of the river. Although it will be obscured by occasional river fogs, as will any close-in airport serving the city of Washington, it is conservatively estimated that the new terminal can be used fully 85 per cent of the time.

The area will provide for four runways of a minimum length of 5,000 feet with unobstructed approaches in all eight directions at flight angles as flat as 1:40.

The initial development of Gravelly Point is to include four paved runways 150 to 200 feet wide and at least 5,000 feet long, together with the necessary drainage, lighting, fencing and other facilities, a suitable terminal building and at least one large hangar with auxiliary service buildings.

PUTTING THE FINISHING TOUCHES ON THE GRADING OF THE NEW MUNICIPAL AIRPORT AT JACKSONVILLE, FLA.
These tractors and carry-type scrapers level and move dirt at the rate of 8 yards an hour on a 1,000-foot haul. Working 8 hours, each outfit averages approximately 640 cubic yards of material a day

Hog Island Swamps Turned into Airport

THE Hog Island swamp, into which the Federal Government poured hundreds of thousands of dollars to create a war-time shipyard, has now been turned into a new municipal airport for the city of Philadelphia, Pa. Philadelphia bought about 1,000 acres of this swamp land in 1928 from the United States Shipping Board for $2,500,000. Ten years ago this was considered a "white elephant," but a project was started to turn it into an acceptable airport. A Federal grant of funds for the work was secured, resulting in the new airport named the S. Davis Wilson Airport. On March 26, 1938, the airport was opened with a dedicatory program with exhibition flights by National Guard and private aviators.

ELEMENTS of PUBLIC SAFETY

GAMEWELL

Fire Alarm

VITAGUARD

For

Volunteer Fire Departments

Despite the great individual fire losses in large cities which frequently run well into millions of dollars, approximately 70% of the annual fire loss occurs in communities of less than 20,000 population. In other words, more than two-thirds of the fire loss occurs in the communities largely dependent upon volunteer fire fighters.

The Vitaguard Fire Alarm System, with its associated public alarm equipment — designed to last for a quarter century—is Gamewell's latest contribution to public safety in cities having volunteer firemen. All elements are extremely simple in design, yet the operation after the initial manual act of pulling a box is entirely automatic, and *directs the firemen to the location of the fire.* The price is within the means of any community.

Police Signal

Write for description and estimates

THE GAMEWELL COMPANY

NEWTON UPPER FALLS MASSACHUSETTS

Public Safety

Is There a Better Word Than Safety?

"THE public hostility against drivers and driving has given way," said William J. Cameron, of the Ford Motor Co., on November 11 to the Automotive Safety Foundation. "The hostility of drivers for police has given way. The hostility of the whole public toward regulations relating to drivers and pedestrians has given way, and that has changed so rapidly as to indicate nothing less than a new public consciousness of the importance of cooperation in this matter of safety—for which I wish we had a better word than safety, because we are not so particular about being safe in this country."

"Safety" does appear to be one of those words for which there is no superior synonym. Furthermore, it has been so intensively advertised that it has attained public acceptance without completely attaining public sympathy. As Mr. Cameron implies, it is one of those paternalistic words lacking a little in popular appeal. The man in the street does not want to be run over; but neither does he want to be made safe by measures restricting his liberty of movement. Perhaps the thing to sell him is not his safety but the fact that carefulness, as differing from over-cautiousness, is a quality of character, and therefore worth cultivating. Most persons are interested in self-improvement, whereas considerably fewer are greatly concerned with their personal safety—at least they do not want others unduly concerned over it.

Keen Car Inspection by Minneapolis

TRAFFIC ENGINEER J. C. VINCENT of Minneapolis reports the first 35 days' activities of the Motor Vehicle Inspection Division conducted under the sponsorship of the City Engineer's Department and in cooperation with the Works Progress Administration.

The total number of vehicles passed was 29,663, of which 11,520 were passed at first inspection, 13,869 the second time, 3,123 the third time, and 1,151 eventually.

The principal mechanical defects were in the following order: headlights, brakes, stop light (not mandatory item), parking lights, tail lights, pedal clearance, steering mechanism, wheel alignment.

In addition to the items which must be in condition to have the car passed, the inspector gives the owner information on the state of the bumpers, tires, mirror, stop light, left front window, wheel alignment. The inspection covers 32 items.

22 Is Called 'Danger Age' In U. S. Law Violations

Helen Fuller, 'Bama Graduate And Department Of Justice Attache, Says More Persons Are Arrested At That Age Than Any Other; Auto Theft Is Commonest

More persons are arrested at the age of 22 than any other age, and more people between the ages of 16 and 24 come into the toils of the law than in any other age group.

So says Miss Helen Fuller, youthful looking University of Alabama graduate, who will serve as chairman of the section on "youth problems and as a member of the prison reform committee at the Southern Conference for Human Welfare at the Tutwiler Hotel Nov. 20-23.

Miss Fuller came to Birmingham in advance of the conference on personal matters today. She's stationed at Washington, where she's special attorney in the criminal division of the U. S. Department of Justice. She also conducts a crime information service for the department.

Training Is Needed

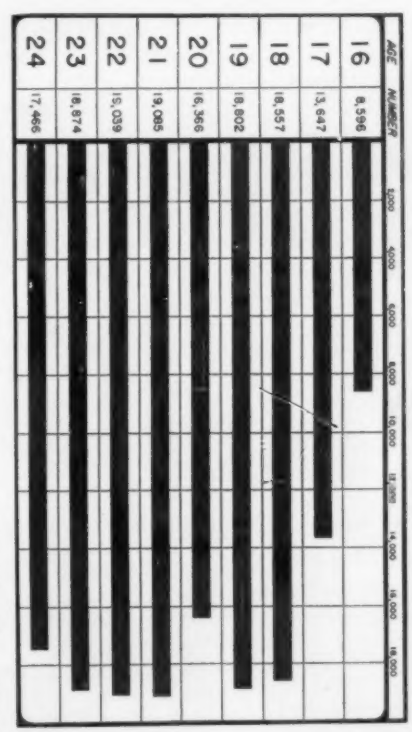
She's principally concerned about juvenile delinquency, because of the increase of juvenile crime over the nation.

For that reason, Miss Fuller says, it is imperative that some form of employment or adequate schooling or general training for youth be provided. "That's the genuine way to prevent juvenile delinquency," Miss Fuller contends.

Young people are not murderers, records on crime compiled by the Department of Justice show.

But by far the greatest number of crimes involving property are committed by young persons between the ages of 16 and 24.

MISS HELEN FULLER



A STORY IN THE *BIRMINGHAM POST* OF NOVEMBER 16, AND A FEDERAL BUREAU OF INVESTIGATION CHART OF ARRESTS OF PERSONS OF 16 TO 24 YEARS FROM JANUARY 1 TO SEPTEMBER 30, 1938

Tribute to Traffic Dead

ON December 3, tolling bells, flags at half-mast, Taps, and a tribute by Mayor Harold H. Burton, commemorated Cleveland's 112 traffic fatalities of 1938.

Fire Inspection in a Small Community

BEFORE a successful inspection bureau can be established, a fire-prevention code should be adopted in accordance with the National Board of Fire Underwriters recommendations. This will give the fire department full control of issuing permits for paints, varnish, gasoline, fuel oil, cleaning, dyeing, and the installation of heating and ventilating apparatus.

A complete record should be kept of all inspections, applications and permits by a competent man who believes in fire prevention.

If printed inspection cards and permits cost too much, have them mimeographed. Use different-colored cards for apartments, stores and manufacturing, garages, theaters and schools.

Have a form letter set up to notify tenants and owners of violations reported by inspectors, giving a time limit in which to correct violations.

Selecting competent inspectors is a problem in a small department. Divide the municipality into zones or districts and rotate inspectors, so that each inspector covers all zones or districts and becomes familiar with all buildings. Not all the men make good inspectors. Some feel that fire-prevention work is unnecessary. Another type sits down in the place of business and fills out his report without going through the premises. Then, in a small town, some men in the department will not enter certain business establishments, for personal reasons.

The man whose appearance is neat, who approaches the owner or occupant courteously, answers all pertinent questions and explains the value of inspection, is an asset to the community. He will familiarize himself with physical arrangements of buildings, so that if a fire occurs, he knows the locations of stairs, fire escapes, elevators, shaftways, standpipes, skylights, scuttles, gas meters, refrigerating units, and incinerators. He also knows how to read blueprints, and make sketches of floor plans. This type of man should become a good officer. He must be able to talk on fire-department work. It is very essential these days to sell the fire department to the public.

HENRY F. BUCHHOLZ,
Millburn, N. J.

For 3,000 Parking Meters

WE have received bids for 3,000 parking meters to be installed on the congested streets in the business districts, and samples are being tested for durability and conformance to specifications. Replies to a questionnaire sent to all cities having parking meters are being tabulated to provide a guide for the selection of automatic or manual meters.

ELIOT NESS,
Director of Public Safety, Cleveland, Ohio.

NOTHING TAKES THE PLACE OF LIGHT

NOTHING TAKES THE PLACE OF CAST IRON PIPE

THE STANDARD MATERIAL FOR UNDERGROUND MAINS

Laying 36" Cast Iron Pipe at Lynchburg, Va. —part of a 22-mile water transmission main.

IN the olden days, when the first cast iron underground main was installed, men read by the light from a candle or from oil burning in a shallow vessel. A century later came the lamp chimney, followed by other improvements in artificial lighting, most of which are now obsolete. Yet that first cast iron main is still in service and cast iron pipe, essentially the same material as in 1664, is today the recognized standard for underground mains. Nothing has taken its place. A pipe material must meet 10 requirements for long life and economical service. Some materials meet some of these requirements but only cast iron pipe meets them all.

CAST IRON

Look for the "Q-Check" registered trade mark. Cast iron pipe is made in diameters from 1¼ to 84 inches.

THE CAST IRON PIPE RESEARCH ASSOCIATION, THOMAS F. WOLFE, RESEARCH ENGINEER, 1015 PEOPLES GAS BUILDING, CHICAGO, ILLINOIS

DECEMBER, 1938

Vol. LIII, No. 12

The American City

470 Fourth Avenue
New York

35 Cents, $2 a Year

Twin Rapid-Sand Filtration Plants Serve Danbury, Connecticut

Industrial Requirements Outweigh Domestic in Water Treatment

TO most people the name Danbury suggests hats, for this Connecticut city leads in the manufacture of felt hats in the United States. But there are other industries of nearly equal importance to the economic welfare of the city, silk dyeing being a leader. The process industries which consume 70 per cent of the total daily demand of 6,000,000 gallons require a water of 7 to 7.5 pH, with no phenolphthalein alkalinity, to permit the proper shrinking of felt hats as well as the best results in the washing of dyed fabrics. This requirement has led to the idea of shifting from lime to sodium silicate for correcting the alkalinity deficiency in the water.

Water-Supply Sources

About thirty years ago West Lake was added to the storage system of small reservoirs, and the water was delivered to the city by gravity. In 1936, however, the need for adequate water treatment and filtration became so great that the scattered reservoirs were developed into two major sources, the older known as the West Lake system and the other as the Marjorie reservoir.

The West Lake reservoir has a storage capacity of 1,300 mg, into which two other smaller reservoirs flow by gravity and by pumping when necessary. The character of the water in the West Lake reservoir is entirely different from that in Marjorie reservoir. The West Lake reservoir is 40 feet deep and produces a water having a color between 20 and 25 and an alkalinity of 12. Some trouble is caused by algae growth, which is overcome by the use of copper sulphate. Just as ice formed, late in December, 1937, an overgrowth of Asterionella occurred, which required the use of Darco activated carbon all winter to overcome the fishy taste and odors. The activated carbon was applied at the West Lake filtration plant at the rate of between 50 and 80 pounds per million gallons.

Marjorie reservoir is a shallow impounding reservoir on an old swampy bottom which was not thoroughly cleaned before filling. It has a storage capacity of 1,100 mg, with no run-off, and is supplied by gravity from two other small reservoirs and by pumping. These were all sources used in the old supply, and no water is permitted to run over the spillways. The color runs from 40 to 50, and the alkalinity is 26. There is almost no permanent hardness, so that the total hardness and alkalinity run about the same.

GENERAL VIEW OF THE MARJORIE FILTRATION PLANT AT DANBURY, CONN., FROM THE RESERVOIR SPILLWAY

The West Lake water is more corrosive, owing to the higher sulphate content, having about twice as many acid radicals as the Marjorie water. The latter reservoir runs the gamut of odors, through distinct, musty, swampy, and vegetable. There are many floating islands in this shallow reservoir, and a constant turnover of the water due to wind action. Nuchar applied at rates from 50 to 100 pounds per million gallons to the settled water, or dumped into the influent well so as to spread out over the filters, has taken care of all the odors in this system. The latter method has made it possible to use as little as 20 pounds of the activated carbon per million gallons for excellent results.

Raw-Water Treatment

The filtration plants on the West Lake and Marjorie systems are identical except that the former does not include flocculators and has a coagulating basin of only 1,000,000 gallons capacity. The rest of this article will be confined to the Marjorie filtration plant, where the main laboratory is located.

Water from the shallow Marjorie reservoir flows through a 30-inch cast iron main to the aerator at the filtration plant. Alum is applied to the water before it reaches the aerator, so that aeration removes not only some tastes and odors, but also takes out from 5 to 10 ppm of carbon dioxide, thus reducing the necessary lime dose by one-half. This is particularly desirable from the standpoint of the industrial use of the water and also from economy of operation. The aerator consists of sixty Miami bottle-type nozzles. From the aerator the water flows to a mixing well which is equipped with a Dorr Turbo-Mix, and thence to baffled flocculator compartments and to the 1.5-mg coagulating basin, divided into two sections equipped with around-the-end baffles. The water has a seven-hour detention in the coagulating basin. It has not been found necessary to use either the Turbo-Mix or the flocculators in the treatment of Marjorie reservoir water, for an excellent floc forms rapidly without any mechanical agitation. This effects a saving in electric consumption.

The plant is so designed that alum can be applied either to the raw-water line ahead of the aerators or in the mixing well. The former is preferred, as it gives an opportunity to release a considerable portion of the carbon dioxide gas by aeration. Pre-chlorination and ammoniation have been installed since the plant was completed, both the chlorine and the ammonia being applied in the mixing well. The use of pre-chlorination has resulted in a 30 per cent saving in the cost of chemical treatment.

THE MIAMI TYPE AERATOR NOZZLES AT THE MARJORIE PLANT

The flow of water from the reservoir is controlled by a float-valve working on a 6-inch variation in the water level on the filters. This float controls the raw-water gate-valves, as well as the alum flow and the application of chlorine and ammonia. The flow of chlorine in the Wallace & Tiernan machine is stopped by a solenoid valve which cuts off the flow of water and thereby automatically shuts off the chlorine. The rate of flow of the chlorine in the machine is hand set.

Filtration

The six sand filters in the plant operate as one, with master influent and effluent valves and individual wash and drain valves for each filter. The present demand on the Marjorie system is so close to the filter capacity of 5,000,000 gallons that the filters are "bumped" between washings to break the surface mat; and in summer they are always washed at night, when the demand is lowest.

The filters are built with concrete manifolds and cast iron underdrains with 3/8-inch holes in the bottom of the laterals. Eighteen inches of gravel and 26 inches of sand complete the filtering equipment. The tops of the metal wash-water troughs are 28 inches from the top of the sand. A 150,000-gallon wash-water tank located on the top of the hill is filled by automatic pumping from the clear well. A rate of 30 inches rise per minute is used as an average for the wash water, but the variation is from 24 inches in winter to 36 inches in summer. The wash water flows to an open settling basin formed by a gravel dike in the valley below the plant, and the water drains through the dike into a nearby brook.

The filter valves are operated by an F. B. Leopold Co. hydraulic control table, and additional operating equipment consists of a Simplex master loss-of-head gage, Simplex master raw- and filtered-water meters, as well as clear-well and coagulation-basin depth gages. The similar equipment at the West Lake plant was furnished by Builders Iron Foundry.

The clear well has a capacity of 500,000 gallons. Lime is applied to the water between the filters and the clear well, and post-chlorination is applied here when needed.

The design of the filters of this plant is such that it is impossible to cut out any one filter without shutting off all the filters. When filters are to be washed, it is necessary to close the master effluent valve, open the master wash-valve, and then open the individual wash-water valve on the particular filter to be washed. This effects a closing of the check-valve on the effluent line from that filter, cutting out the individual rate-of-flow controller.

Pumping Equipment

In the basement of the main three-story section of the filtration plant is a 7-mgd DeLaval booster pump, driven by a 25-hp Continental electric motor, which is used on the raw-water line when the gravity flow from the reservoir is not sufficient. Two ½-mgd DeLaval centrifugals with 10-hp Continental motors automatically controlled are also located in the basement and can be used in series or individually for delivering water to the wash-water tank. Owing to the elevation of the filtration plant, a pressure of only 12 pounds could be secured in the water lines within

the plant. This was not sufficient for the operation of the hydraulic valves or the chlorinators. To remedy this deficiency in pressure, a small booster pump was installed which raises the pressure to 40 pounds.

Chemical Treatment Equipment

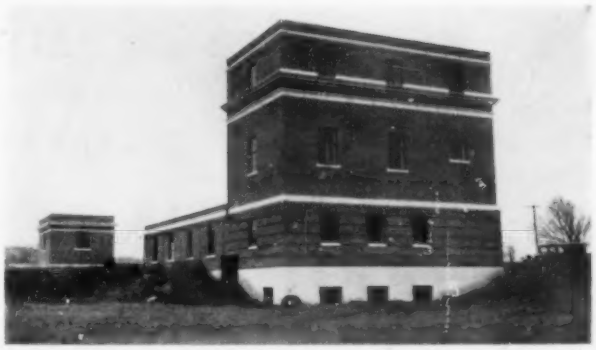
The three-story section of the structure contains the chemical storage on the top floor; the post-chlorinating equipment, toilet, and auxiliary soda ash solution tank with a Proportioneers pump and three Wallace & Tiernan dry chemical feeders, one each for alum, lime and activated carbon, on the second floor; and on the first floor is located the entrance hallway leading to the filters and also the laboratory. The lime and post-chlorination rates are set manually, and the lime machine is also piped so that it can be used for raw-water treatment. Activated carbon or lime can be applied to the raw water or to a point midway in the coagulation basin. Ordinarily, however, the lime is used as an after-treatment. The activated carbon is handled satisfactorily when fed at high rates. A ½-ton Yale electric hoist located at a window on the top floor is used for raising the chemicals to the storage room, which has a capacity of 8 tons of lime and 20 tons of alum.

TYPICAL SAMPLES, OCTOBER 3-4, 1938

	Marjorie		West Lake	
	Raw	Filtered	Raw	Filtered
Color	45	0	30	0
Odor	Disagreeable	None	1 V	0
Turbidity	3	0	1	0
Nitrite	.000 ppm	.002 ppm	.....	.....
Nitrate	.05 "	.02 "	.....	.....
Ammonia	.004 "	.004 "	.....	.....
Albuminoid	.380 "	.136 "	.....	.....
Chlorides as Cl	1.2 "	2.6 "	.....	.....
Normal chloride	2.3 "	2.3 "	.....	.....
Iron	0.8 "	0.1 "	0.25 ppm	0.05 ppm
pH	7.1	7.1	6.8	7.2
Alkalinity	22 ppm	23 ppm	13.0 ppm	12.0 ppm
Total hardness	34 "	40 "	22.0 "	29.0 "

Flow to City

Water from both the West Lake and the Marjorie plants flows to the city by gravity. From the Marjorie plant a 30- to 24-inch steel pipe leads to the north end of the city, and from the West Lake plant a 24-inch cast iron line leads to the west side of the city, the two lines meeting in the center of the city at a cast iron tee located in front of the City Hall. Some slight difficulty has been found in the operation of the two plants on a gravity basis at night when the demand is low, because the clear well at the West Lake plant is 8 feet lower than at the Marjorie plant, making it necessary to partially close the valve at the Marjorie plant at night to prevent backflow into West Lake clear well.



THE FILTRATION PLANT AT MARJORIE RESERVOIR, DANBURY, CONN.

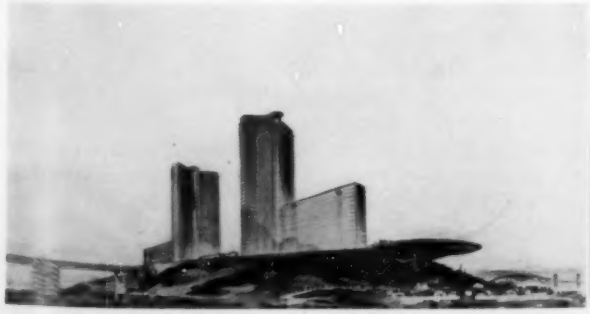
Chemical Analyses

A change from lime to sodium silicate to improve the character of the water for industrial processing will be made early in January, 1939. This chemical cannot be used in water where the domestic supply is used directly for high-pressure boilers, but there are no boilers of this type in Danbury at the present time. The policy of the Danbury Water Department officials has been to educate the industries within the city to make minor adjustments in the domestic water as supplied so that it will be most suitable for the specific needs of that industry.

The West Lake and Marjorie filtration plants for the Danbury, Conn., water supply were built in the spring of 1937 and placed in operation in July and May respectively. Chester M. Everett, of New York City, was the consulting engineer in charge of design and construction. The filtration plants are operated by H. C. Chandler, Chemist in Charge, and T. J. McHugh is Superintendent of Water Works in charge of the distribution system. T. R. K.—910.

"San Francisco in 1999"

THE illustrations below are from a large diorama of "San Francisco in 1999," which will form the central theme of the United States Steel Corporation exhibit at the Golden Gate International Exposition on San Francisco Bay next year. The finished sketch by Walter Dorwin Teague of New York, designer of the exhibit, shows each of San Francisco's seven hills crowned by a large, modernistic, apartment-house community, complete with shops, theaters and airport. Linking the seven hilltop communities is an overhead express highway. All the city's transportation facilities are centered at a great transportation terminal affording dockage and storage space for freight and cargo, and facilities for dispatching all traffic.



TRANSPORTATION TERMINAL OF 1999

COMMUNITY OF FUTURE ON TELEGRAPH HILL

New Refuse Incinerator at Middletown, Conn.

Householders Educated to Separate Non-combustibles for More Efficient Collection and Operation

So well has the educational campaign operated in Middletown since the new refuse incinerator was started, that little difficulty is experienced with non-combustibles in the refuse cans. This was evidenced at the time of our visit, when a lad of some ten years arrived pulling a platform wagon, equipped with four diminutive disk wheels, on which was a bushel basket of refuse with all the papers carefully tucked in to prevent blowing. Parking the wagon next to the big incinerator doorway, he poked around the edge of the basket until he found two tin cans and a bottle, which he pulled out and carried over to the dump for non-combustibles. Returning, he lugged the basket inside, where one of the willing incinerator men dumped it and tossed the basket back. Moral: Where 10-year-olds separate refuse, the parents will follow suit.

Collection

To make the new incinerator as effective as possible, the city requires that the householders separate tin cans, bottles and junk from the garbage and waste paper and boxes, and then uses a special type of truck for collection so that the combustibles and non-combustibles may be kept separate. Two of these White trucks with all steel bodies, made by Gar Wood from the special designs of the city, are used for collection in this city of 25,000, and another is being built for reserve. The combustibles are loaded into the back of the truck, behind a hinged steel door which is held in place by a pin. The non-combustibles are dumped forward of this door. After the combustibles have been dumped on the incinerator floor, the truck pulls out to the dump, the pin is pulled, and the bottles and cans are dumped over the bank.

Four men make up the crew for each truck: a driver, two men on the ground and one inside. Residential collections are made twice a week and business district collections daily, both summer and winter. The trucks start out at 5:00 in the morning and usually finish their work within nine hours. In addition to the regular collection truck, there is an open-body Dodge truck for utility service, which picks up skipped collections and brush. The average daily collections in tons throughout a typical week are as follows: Monday, 23.4; Tuesday, 25.2; Wednesday, 25.2; Thursday, 21.6; Friday, 21.6; Saturday, 12.8.

From ten to fifteen outside loads of combustibles are received at the incinerator each day, hauled in by merchants whose wastes are too bulky for the city to handle, and by small building contractors and others who produce waste intermittently.

THE STANDARD GARBAGE AND RUBBISH COLLECTION TRUCKS WITH FRONT COMPARTMENT FOR NON COMBUSTIBLES, AS USED IN MIDDLETOWN, CONN.

The Building

The construction of the new incinerator made possible abandoning the old South End dump just across the street from the incinerator and the sewage-treatment plant. This area is now being made into a park. Smoke from the burning of rubbish on the old dump was a distinct nuisance to patients in the Middlesex Hospital on a hill just above the dump. No complaints of odors have been received by the Department of Public Works since the new incinerator was placed in operation. Another dump at the west end of town has also been abandoned since the incinerator was completed.

The building is of Pennsylvania buff brick outside, matching the nearby sewage-treatment works, and is lined with red brick inside. The windows are all steel sash, with wired glass, and with heavy guard screens inside. All steel work is aluminum painted, and the roof is of segmental concrete slabs with a built-up tar and stone weatherproof surface on top. A toilet and washroom for the men is located on the ground floor of the building. Both the charging and stoking floors are washed down daily with a hose and hot water, and the charging floor is used at night for garaging the Sanitation Department trucks. An automatically controlled sump pump in the basement removes all drainage water from the lower or stoking floor of the building, which is below sewer level. The hot water for the washroom, for cleaning the floors, and for heating the toilet and washroom, is supplied from the pipe basket grate of the incinerator furnace.

The building measures 32 feet 8 inches x 52 feet 8 inches in plan and at present contains only one furnace, but space is left for a second unit when required. Both the sewage-treatment plant and the incinerator are built on the site of an old swamp, which created serious foundation problems. This is taken care of by a very heavy reinforced concrete slab and foundation of Raymond concrete piles. No settlement has been noted in either structure nor of the high stack. The lower story of the building is of water-tight reinforced concrete construction to keep the flood

waters of the nearby Connecticut River out of the plant when they rise well above the stoking floor level. During construction the water rose 10 to 12 feet above this floor without entering the building.

The Charging Floor

A P & H 2-ton electric hoist mounted on a monorail is used to lift the cover of the charging hole, to bring up ½-yard containers of ashes from the stoking floor, and the rail is continued over the location of the second charging hole so that it may serve that unit when built. Ample access to the charging floor is furnished through the two doorways, 14 feet wide and 16 feet high, which are closed at night by steel roller shutters. A concrete wall, raised about 2 feet 6 inches above floor level around the opening in the charging floor, down which large cartons and wooden boxes are dropped to furnish fuel for starting the fire in the morning and up which the ash containers are raised for emptying into a motor truck, prevents water from flowing down onto the stoking floor when the charging floor is being washed. The drains for the charging floor are located away from the doors and charging openings into the furnaces.

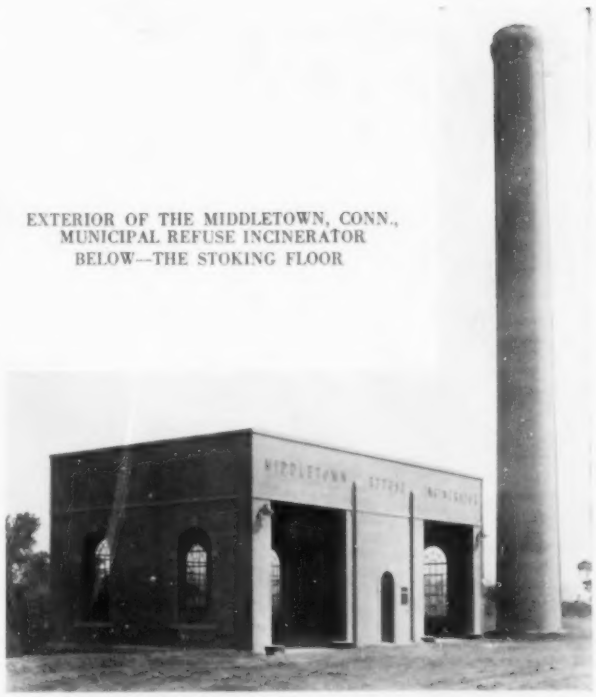
The Stoking Floor

The stoking floor of this Nichols-Decarie suspended basket-grate type incinerator, the present single unit of which has a capacity for easily burning more than 14 tons of refuse in 8 hours, is also of concrete and is kept in a cleanly condition at all times with any piles of cartons, boxes and other kindling material kept neatly against the walls. When the incinerator was first started on August 1, 1937, the city bought a load of wood for kindling. Some of this was used for starting the first fire, but most of the load is still stacked away under the stairs, for there has been ample combustible material to start the fires every morning and also to maintain them at all times even during the wettest weather.

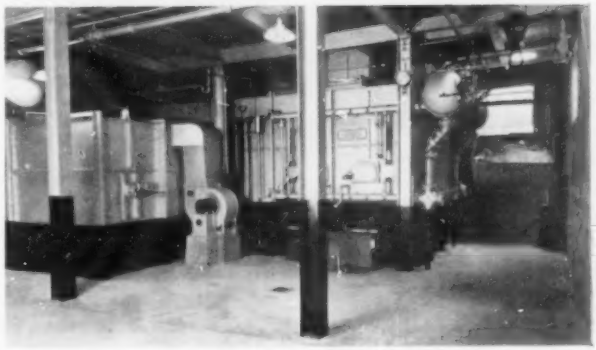
The present incinerator furnace was designed to burn 40 tons of mixed refuse in 24 hours, made up of 70 per cent garbage and 30 per cent rubbish, by weight. During the acceptance test on July 30, 1937, when burning very difficult refuse containing only 15 to 20 per cent of rubbish, the furnace burned at 122.8 per cent of its rated capacity. The electric power used by the forced draft fan and the ash hoist operating equipment amounted to only 1.09 kw hours per ton.

A Silentvane Sturtevant blower driven by a 3-hp General Electric motor is installed to force air through a Nichols-Decarie refractory tile pre-heating unit and deliver it beneath the grates. This unit is seldom used, since there is ample draft, so that no power is required for a forced draft.

The plant is operated from 6 in the morning to 5 in the afternoon on two shifts. Two men come on at 6 A.M., two more at 7 A.M., and stay through to 5 P.M. The two stokers clean the fire usually twice a day, but on days of unusually heavy deliveries the fires are cleaned three times during a day. When clinkering, the ash is hauled out into specially designed ash containers which each hold ½-yard of ashes and are quenched with water. Each ash container has three wheels, one of which is a caster, and they are hoisted by a heavy bridle with four dumping chains and hooks. The furnace is equipped with four clean-out doors and there is also one at the base of the stack, one in the gas combustion chamber, and one back of the pre-heater. The fine ash is removed from the chimney once a month.



EXTERIOR OF THE MIDDLETOWN, CONN., MUNICIPAL REFUSE INCINERATOR
BELOW—THE STOKING FLOOR



The buff radial brick stack has a full self-supporting firebrick lining with a target wall and steel corset for the full height with an inside diameter of 5 feet and a maximum outside diameter at the base of 9 feet 8½ inches. It is 103 feet high above the grates and was built by the M. W. Kellogg Co., of New York. One bricklayer laid all the face brick for the entire chimney with remarkable speed.

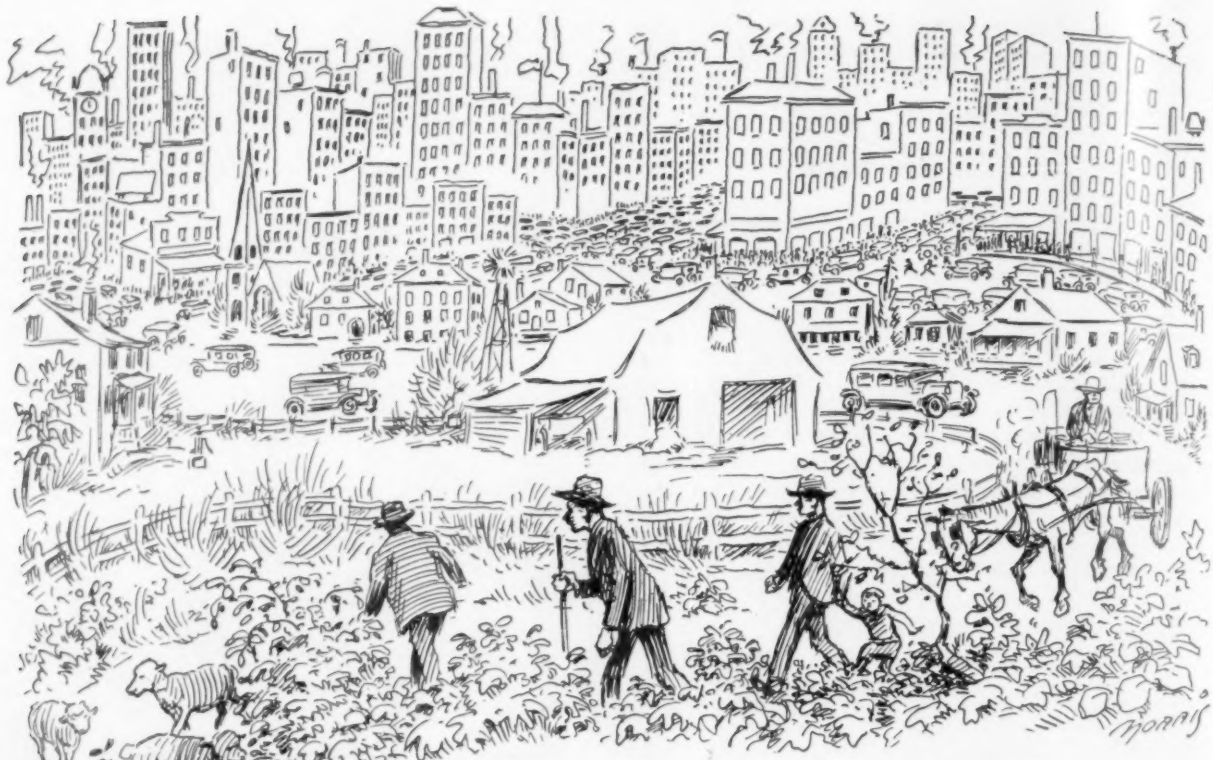
The incinerator is operated by the Sanitation Division of the Department of Public Works, under the direction of Samuel C. Cannon, Superintendent of the Department, with Henry W. Bauer in direct charge as operator of the nearby sewage-treatment plant and the incinerator.

T. R. K.—789.

ANNOUNCEMENT FROM M. I. T.

Walter R. McCornack, of Cleveland, Ohio, noted architect and authority on housing, will become Dean of the School of Architecture of the Massachusetts Institute of Technology when Dean William Emerson retires next autumn, Dr. Karl T. Compton, President of the Institute, announced last month.

Dean Emerson has been head of the Institute's School of Architecture since he joined the faculty in 1919, after a notable career in architecture in New York, where he specialized in the design of bank buildings and model tenements.



Drawn by MORRIS for THE AMERICAN CITY

The Calf-Path

By SAM WALTER FOSS

I

One day through the primeval wood
A calf walked home as good calves should;
But made a trail all bent askew,
A crooked trail as all calves do.
Since then three hundred years have fled,
And I infer the calf is dead.

II

But still he left behind his trail,
And thereby hangs my moral tale.
The trail was taken up next day
By a lone dog that passed that way;
And then a wise bell-wether sheep
Pursued the trail o'er vale and steep,
And drew the flock behind him, too,
As good bell-wethers always do.
And from that day, o'er hill and glade,
Through those old woods a path was made.

III

And many men wound in and out,
And dodged and turned and bent about,
And uttered words of righteous wrath
Because 'twas such a crooked path;
But still they followed—do not laugh—
The first migrations of that calf,
And through this winding wood-way stalked
Because he wobbled when he walked.

IV

This forest path became a lane,
That bent and turned and turned again;
This crooked lane became a road,
Where many a poor horse with his load
Toiled on beneath the burning sun,
And traveled some three miles in one.
And thus a century and a half,
They trod the footsteps of that calf.

V

The years passed on in swiftness fleet,
The road became a village street;
And this, before men were aware,
A city's crowded thoroughfare.
And soon the central street was this
Of a renowned metropolis;
And men two centuries and a half
Trod in the footsteps of that calf.

VI

Each day a hundred thousand rout
Followed this zig-zag calf about
And o'er his crooked journey went
The traffic of a continent.
A hundred thousand men were led
By one calf near three centuries dead.
They followed still his crooked way,
And lost one hundred years a day;
For thus such reverence is lent
To well-established precedent.

VII

A moral lesson this might teach
Were I ordained and called to preach;
For men are prone to go it blind
Along the calf-paths of the mind,
And work away from sun to sun
To do what other men have done.
They follow in the beaten track,
And out and in, and forth and back,
And still their devious course pursue,
To keep the path that others do.
But how the wise old wood-gods laugh,
Who saw the first primeval calf.
Ah, many things this tale might teach—
But I am not ordained to preach.

—From "Whiffs from Wild Meadows," used by permission of the publishers, Lothrop, Lee & Shepard Co., Boston, Mass.

Combating Urban Blight by Neighborhood Reconstruction

By JOHN McC. MOWBRAY
President, The Roland Park Co., Baltimore, Md.;
Chairman, Housing Committee, National Association of Real Estate Boards

THE causes of blight are not difficult to identify. Bad planning and zoning probably must take first place. All our cities are over-zoned, that is to say, excessive areas have been set aside for commercial uses and for multiple dwellings, and this has accelerated the decay of purely residential and home neighborhoods. Traffic hazards are another major cause of blight. As the one-child and two-child family become more characteristic of American civilization, the entire family life tends more and more to revolve around the child, and, when they can, families will flee from any neighborhood where their children are exposed to the danger of death and mutilation from traffic. Smoke and noise also play their part in creating blight. When blight attacks a neighborhood, there is no question but that its housing facilities deteriorate. Physical decay and slovenliness create conditions that do not make for social health.

It is our firm conviction that the problem of blight in our cities can be combated and overcome only by replanning and reconstructing entire neighborhoods. It is the neighborhood in which family life has its root and being. Neighborhood influences have a profound influence on the health, outlook, and success of the average American family. If we can recreate blighted areas by reconstructing them as neighborhood units in which the conditions for a wholesome family life are present and are protected, we can start the process of rebuilding our cities not only physically but in a civic sense as well.

The task of rebuilding neighborhoods involves only in part the task of providing low-cost housing. A good neighborhood must have in it persons of a variety of economic levels and incomes. It is diversity which gives to the neighborhood strength and stability, just as diversity of occupation and industry gives strength and stability to a city.

The reconstruction of neighborhoods a square mile or several square miles in extent is a great undertaking that involves replanning and rezoning. It involves surveys to determine how much of a present neighborhood can be salvaged and how much must be rebuilt. It involves a careful study of the municipal facilities now available and a determination of the extent to which they must be augmented. These are tasks which involve not only government but also vast numbers of private ownerships and a wide range of business activities.

Neighborhood Reconstruction Corporations Proposed

It does not seem to us that there is any present agency, either private or public, which is qualified to undertake the problem of neighborhood reconstruction. For this reason, we invite consideration of the thought that there might be created neighborhood reconstruction corporations having the nature of public service companies to undertake this task. Such corporations organized to function in specified neighborhoods would have to be created and licensed by state law so that they might exercise the power of eminent domain where necessary.

The question might very properly be raised as to the constitutionality of such an act. To grant to private institutions the right to evoke the power of eminent domain automatically places such a grant under the necessity of judicial interpretation. Such corporations face the same difficulties which other private public service corporations had to face in our history. We must build up sentiment for such legal procedure probably over a period of time, as has been necessary in establishing our existing zoning laws. It is, however, significant that the public is becoming constantly aware that unlimited freedom in the use of a site does not give the owner so great an enjoyment of his rights as he gains when he surrenders certain privileges in return for similar surrenders of his neighbors. While the right of the individual is important, he should not be allowed to insist on special privileges to the extent that the community as a whole suffers.

It is probable that such corporations would also have to have assistance from the local and Federal governments in the process of land acquisition. The corporations, however, in our judgment should be privately owned and financed and should be operated as business enterprises with only such public control as is usual in the case of public utilities in other fields. The attempt to prescribe in detail, as was done in the laws creating limited-dividend housing companies, the nature of facilities to be built and the rents to be charged would make such corporations useless. Neighborhood reconstruction corporations would make possible a partnership of private enterprise and government through which the whole problem of blight could be attacked on the large scale which is necessary.

The Local Government's Part

The type of reconstruction corporations we have in mind would have to start with the help of the local government in obtaining a replanning of the neighborhood area. They would have to gain the interest and cooperation of local property owners. How much of the neighborhood area and improvements involved in any single case such corporation would have to acquire by purchase in order to proceed with the reconstruction of the neighborhood, would have to be determined in each instance. Federal agencies might help, including both the USHA and the FHA. The USHA could give grants for land acquisition, since it is apparent that in most cases the cost of acquiring land and old im-

provements plus the cost of new improvements creates a total capital investment which future income might not justify. The FHA might well assist by insuring the bonds or debentures of such corporations.

The character which neighborhood reconstruction corporations should have is a problem that involves further study. It is my belief, however, that such corporations should have powers broad enough to create the kind of facilities that are necessary and sound in each neighborhood, including not only housing for various income classes but also the business facilities which a neighborhood needs.

We hear much about planning from both local and Federal agencies at this time. I, for one, feel that too much of the planning that has been done is paper work and that very little of it has been brought down to the field of reality and immediate practicality. The real estate industry and the building industry are ready to go to work now if we can find a basis of common effort with our local governments and if we can get the helpful support of our Federal Government. We believe that the place to start is not with vast units that are beyond our practical comprehension and understanding, but with the unit with which the average American family is concerned, namely, the neighborhood. If we can learn to build or rebuild neighborhoods successfully, then perhaps we can also learn how to rebuild our cities properly. Let us seek, therefore, a plan along the lines which I have suggested for neighborhood reconstruction. Reconstructed neighborhoods will enable us, brick by brick, to build healthful, sound, and livable cities.

—From a paper on "Public Utility Housing Companies as Alternative to Government Housing," presented at the Construction Industry Conference of the Chamber of Commerce of the United States, Washington, D. C., October 21, 1938.

Enclosed Apparatus Preferred

By A. C. DU REE
Fire Chief, Long Beach, Calif.

THE city administration of Long Beach, Calif., is very favorable to replacing obsolete equipment on a ten-year program of rehabilitation of buildings and equipment, though hampered by insufficient finances.

Our active apparatus includes a combination pumper and booster tank with fog equipment, and eleven triple combination pumpers, three of which are more than fifteen years old. Our two ladders—an 85-foot aerial and a city service—also are over fifteen. In special-duty apparatus, we have two rescue and salvage trucks (enclosed), a salvage and portable floodlight truck, a trailer carrying 2,400 pounds including foam powder and applicators, two fire-alarm maintenance trucks, a shop repair truck, a hydrant service truck, and a stores supply truck. The city-service ladder truck is the only piece in reserve and is fully equipped for service.

AT LEFT—TYPICAL FIRE HOUSE, LONG BEACH, CALIF.
With 750-gallon Ahrens-Fox pumper

Note cab on apparatus above

I am 100 per cent for enclosed apparatus, having two pieces entirely enclosed and one pumper with an enclosed cab. We plan to purchase only enclosed equipment.

The city charter says: "All purchases that exceed $800 must be to bids," and then the contract must be awarded to the "lowest responsible bidder meeting specifications." In my opinion, steps should be taken to permit a city to make an outright purchase of fire apparatus without opening bids. This would prevent bidding from a catalog.

We are operating very successfully a voice-amplification system which connects twelve stations and the chief's house, and connections will be made in each of the two assistant chiefs' homes. When all members of a company hear a message, the chance of mistaking a location is small.

The Improvement of Clinton Square, Syracuse, N. Y.

By EUGENE CLUTE

MANY cities have unsightly areas in important locations that could be beautified at low cost. This has been the case with Clinton Square, in Syracuse, N. Y., which recent improvements have made up-to-date and attractive. In these times, with PWA and WPA aid available, there is an excellent opportunity to make such permanent improvements, instead of employing labor in ineffectual ways.

The improvement of this square has been so planned that not only was the first cost low, but little maintenance is required. This is an important point to keep in mind in considering any civic improvement project. Many of the costly parks and playgrounds that are being created will be burdensome to keep in proper condition through the years to come.

WHEN THE ERIE CANAL PASSED THROUGH CLINTON SQUARE

CLINTON SQUARE, SYRACUSE, ABOUT 1912

The Clinton Square improvement was designed by Dwight James Baum, F.A.I.A., architect, who spent his boyhood days in Syracuse and has always retained his interest in that city, though he has long been engaged in the practice of architecture in New York. He saw the opportunity for the improvement of the Square, and outlined his idea to Mayor Rolland Marvin. The Mayor listened with genuine interest, and called in Park Commissioner William Barry, who approved heartily. Mr. Baum was authorized to work out his suggestions, and in a few months the Square was completely transformed. Its appearance after the improvement can be seen in photographs reproduced here, which were taken from the upper floors of buildings facing the Square.

WHEN PARKED CARS MONOPOLIZED MOST OF THE SQUARE, IN 1933

It is interesting to note that in his design for Clinton Square Mr. Baum was able to see carried out some of the

PRESENT SURROUNDINGS OF THE WAR MEMORIAL IN CLINTON SQUARE, SYRACUSE

ideas which he had formed for the improvement of downtown Syracuse more than twenty-five years earlier. When he graduated from the Architectural Department of Syracuse University in 1909, he took as his thesis a plan of city improvement for Syracuse, studying the streets and the city in general, but Clinton Square in particular. If it had not been for his original plan, the Post Office would not be located where it now is, and would be much farther removed from the present new railroad station.

Clinton Square was always the center of Syracuse, from the days of the completion of the old Erie Canal, when Governor Clinton rode through on the first boat. The Square was used as a public market when the city was small, and on market days it had the appearance of some of the larger towns in Holland. There were formerly two lift-bridges over the canal at this point. After the completion of the Barge Canal, the Erie Canal through Syracuse was abandoned, and its course was filled in and paved to form the traffic artery known as Erie Boulevard, which runs through the center of Clinton Square.

At the time the present improvement was undertaken, Clinton Square was a prominent eyesore. The area at either end of the War Memorial and the entire area to the south were used for parking cars, which caused congestion during rush hours. In the midst of all this stood the War Memorial, designed by Clarence Blackall, architect, of Boston, and Cyrus Dallin, sculptor, and built by Onondaga County about 1900. The condition before the improvement is shown in one of the photographs. As the large terraces at the sides of the monument seemed to require constant attention, both repairs and cleaning, and as there was no further need for them, they were cut back to the square base of the monument.

This made it possible to create the green parked areas at the north and south of the monument, which require very little maintenance and produce a more open effect. The area to the south was converted into a green park, with a fountain to balance the monument and form a center of interest. The fountain has a single jet of water and is so arranged that it can be illuminated at night. Though little money was available for landscaping and, consequently, very small nursery stock had to be bought, this planting has since grown considerably and is now quite presentable. (See front cover of this issue.)

Pavement Construction and Repair in Palm Beach, Florida

The Island Is Chiefly Sand Requiring Imported Rock for All Paving

PALM BEACH is on an island composed chiefly of sand with a very small amount of cochina deposits of small snail or periwinkle shells, and an even smaller amount of coral. In the construction of pavements in Palm Beach the ball-bearing sand is struck off roughly to grade, and then 12 inches of loose limerock indigenous to Florida and Georgia is spread, thoroughly wet and rolled, with a blade kept constantly ahead of the roller to cut the moist, compacted rock to a smooth, even surface. Low spots are constantly filled, and with the renewed wetting and rolling the new material is incorporated into the old, forming a homogeneous hard slab of the compacted limerock.

Two types of the limerock are used in Palm Beach, the "Ojus" and the "Naranja" rock. The other types commonly used in Florida are the Ocala and the Brooksville limerocks, which are usually referred to as the first and second grades of limerock.

Completing a Limerock Street

Water wagons are hauled ahead of the rollers on the streets as the rolling is continued, with a slight roll of slurry ahead of the rolls, as with the final rolling of a common waterbound macadam. After the rolling is completed, the limerock is allowed to dry thoroughly, and then it is broomed by hand, or with a rotary broom if the section is sufficiently long, to remove all loose material that might be thrown to the side by traffic after the limerock had absorbed the asphalt binder.

The surface is given a prime of ⅜-gallon per square yard of 95 per cent road oil, and immediately after the application the road surface is covered with about ½-inch of local sand as a blotter. The sand is absorbed only slightly by the asphalt and the base, most of it being thrown to the gutters by the traffic. The sand is constantly thrown back onto the road for a period of a week to ten days, and then the surface is swept clean and the sand removed from the street. A surface of this type wears remarkably well and requires re-oiling only once in three years. On particularly heavy corners re-oiling is done more frequently to protect the base.

Utility Patches

After a cut is made in one of these limerock pavements for the installation of a new water connection or a sewer, the hole is backfilled with sand, thoroughly wet and hand tamped, and then Naranja limerock is hand-tamped wet to a slightly greater depth than the original base that was cut, and up to within one inch of the top of the hole. The surface repair is made with Kyrock, Kentucky rock asphalt, by the placing of 1½ inches thickness on the surface and then hand-tamping down to the 1-inch thickness. A slight camber is given to the patching material so as to prevent a concave surface as the patch is pounded down by traffic.

On long sewer trenches the surface of the street is scarified for about 3 feet on either side of the trench, or far enough back to include any visible cracks caused by the running of sand after the pulling of sheeting, additional limerock is placed, and the surface re-oiled as for a new pavement. For long, narrow trenches the procedure is the same as for the small patches.

Street paving in Palm Beach is done under the direction of C. G. Donnelly, Superintendent, Department of Public Works, and J. R. Gallagher, Superintendent of Streets. N. C. Schmid is Town Engineer. T. R. K.—805.

New Yacht Basin Built by Fort Myers

Florida City Adds Park and Anchorage to Waterfront as a WPA Project

AS a distinct addition to its recreational facilities, Fort Myers is building a new park and yacht basin as a WPA project at a total cost of between $150,000 and $175,000. The site is the old municipal dock, which had been condemned because it was weakened by infestations of teredo in the supporting piles. The area in which the yacht basin is located had been used for many years as a dumping ground for fishing boats, resulting in the finding of many curious things during the dredging operations—a number of old two-cylinder marine motors, small boats, the hulk of a long-forgotten barge, and one of the choice "finds" was an old Edison phonograph record of "Peg o' My Heart."

By clearing away old low-grade houses and removing a few shops, this project will open up a recreational area extending over 1,000 feet northwest from Main Street and for nearly 850 feet along the shore of the Caloosahatchee River which forms a part of the new Caloosahatchee-Okeechobee cross-state waterway from Fort Myers on the Gulf to Stuart on the Atlantic, for small craft. Two streets, Hendry and Lee, will be extended on either side of the yacht basin, and a new street, Riverside Boulevard, will be created adjacent to the yacht basin. Planting and lighting will complete the project, at once a new park and a new service to visiting owners of cabin cruisers.

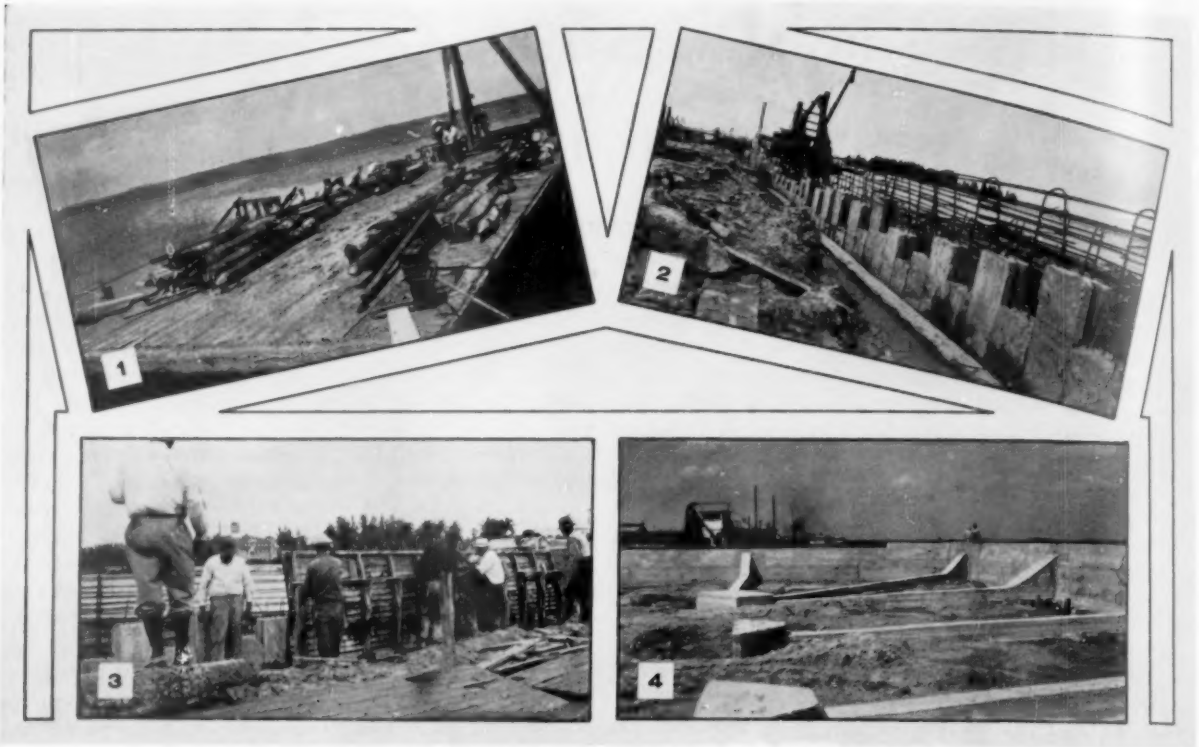
Construction

In the early stages of the work it was very difficult to assemble and train the WPA workmen, but these forces were finally turned into an operating crew that was a credit to any contracting company, resulting in a great speeding-up of the work of constructing the sea-wall. This wall, which completely surrounds the yacht basin and extends around the projected streets, is 16 inches thick at the bottom, 11 inches thick at the top, and extends from normal low water to a height of 54 inches. It is anchored every 16 feet to piles driven in the river bottom by reinforced concrete struts 10 x 11 inches in cross-section, with the reinforcing extended around the pile and capped with a 33-inch concrete block. Every fourth anchor is widened at the wall section and carries an expansion joint extending through the wall. On the side of the work toward the turning basin the anchoring piles are driven in pairs and the reinforcing enters between them and is wrapped out around them.

The wall itself rests on a cut-off composed of pre-cast reinforced concrete piles with tongue and groove for interlocking. These are 7 x 17 inches in cross-section and 16 feet 3 inches and 17 feet 6 inches in length, so that when driven by the floating pile driver to a uniform depth they gave a broken parapet for bonding with the wall. The reinforcing of the wall is shown in one of the accompanying illustrations.

Two sets of 64 forms 64 feet in length each were made up with 10-foot sections except for the end form, using 1-inch lumber and 2 x 4-inch studs. This was a little too light for effective handling, but the work was handled well, with some repairs to the forms after they were stripped following each pour. Stripping followed the

ARCHITECT'S SKETCH OF THE NEW YACHT BASIN AT FORT MYERS, FLA.



BUILDING THE FORT MYERS, FLA., YACHT BASIN

1. Teredo-infested piles removed by the derrick barge. 2 Precast concrete sheet piling driven as a cut-off below the wall, showing the reinforcing for the parapet wall. 2. WPA workers assembling parapet wall forms. 4. Reinforced concrete tie struts

pouring by about 24 hours. A 10-cubic foot CMC 2-bag mixer was used for pouring the walls, with a mix composed of 1 bag of cement, ½-bag of Magnolia waterproofing, two level wheelbarrows of sand, and three calibrated boxes of rock, which was equivalent to a 1:2¼:3½ mix.

The section of sea-wall along the river, through which there will be an 85-foot channel, is hung from piles driven in two rows 5 feet 9 inches apart and spaced 13 feet 7 inches, with walls between the rows for braces, and between piles in the same row for curtain walls, reaching to just below low tide. A concrete walk on top of this section will be 10 feet 6 inches wide and have an expansion joint every four panels, with piles driven in pairs at these points.

Along Riverside Boulevard there will be a walk 7 feet 2 inches wide, with an ornamental hand-rail and pilasters 1 foot 3 inches high; then a step up to a second walk 5 feet 6 inches wide, beyond which is a 14-foot 1-inch parkway which will carry planting and the lighting units for the area. Beyond this is the 56-foot street with a 11-foot 6-inch park strip and sidewalk. Between this and the north side of Main Street there will be a public park replacing the present unsightly structures.

The entire periphery of the yacht basin will have slips 40 feet 2 inches long, built of creosoted wood to accommodate small yachts and cruisers.

Dredging

The dredge "Dave Ireland," a barge 20 feet by 65 feet with a draft of 5 feet, was used to create a 10-foot basin within the anchorage area, and a similar channel across the site of the hanging wall, so that the pile driver could be floated across and drive the piling. The material was all used to fill the areas behind the sea-walls. The material consisted of muck and 3 feet of silt over sand with some marl and rock. Because of the large amount of fine material, the accumulated yardage each day was not as large as if the material had been mostly sand and rock. The dredge, owned by Dave Ireland of Fort Myers, Fla., is powered with an 8-cylinder Superior diesel engine driving an Electric Generator and Motor Co. generator which supplies power for the auxiliaries. The engine is also direct-connected to a 10-inch Maddox Foundry & Machine Works dredging pump. The electric swinging engines, spud engines, cutter drive and cutter hoist are all controlled from the bridge. The dredge worked two 8-hour shifts on this job.

One of the important operations was the removal of the old pile bents of the municipal pier. This work was done by the pile driver, using the hoist to jerk the piles loose from the river bottom while they were jettied with a 20-foot pipe. This work was exceedingly slow because most of the piles broke between high and low water mark where the teredo had done its most destructive work. Among the other objects extracted was a 60-foot well pipe which had been driven in the dim past to furnish fresh water to boats at the end of the pier.

This project was instituted by Mayor Dave Shapard under a WPA grant for labor and materials. Credit for the organization of the labor goes to L. J. Lynch, Supervisor, who handled the form work and concreting in the same manner as a well-organized contract project. The design and general supervision of the work was by F. H. Horton, consulting engineer, of Tampa, Fla. T. R. K.—809

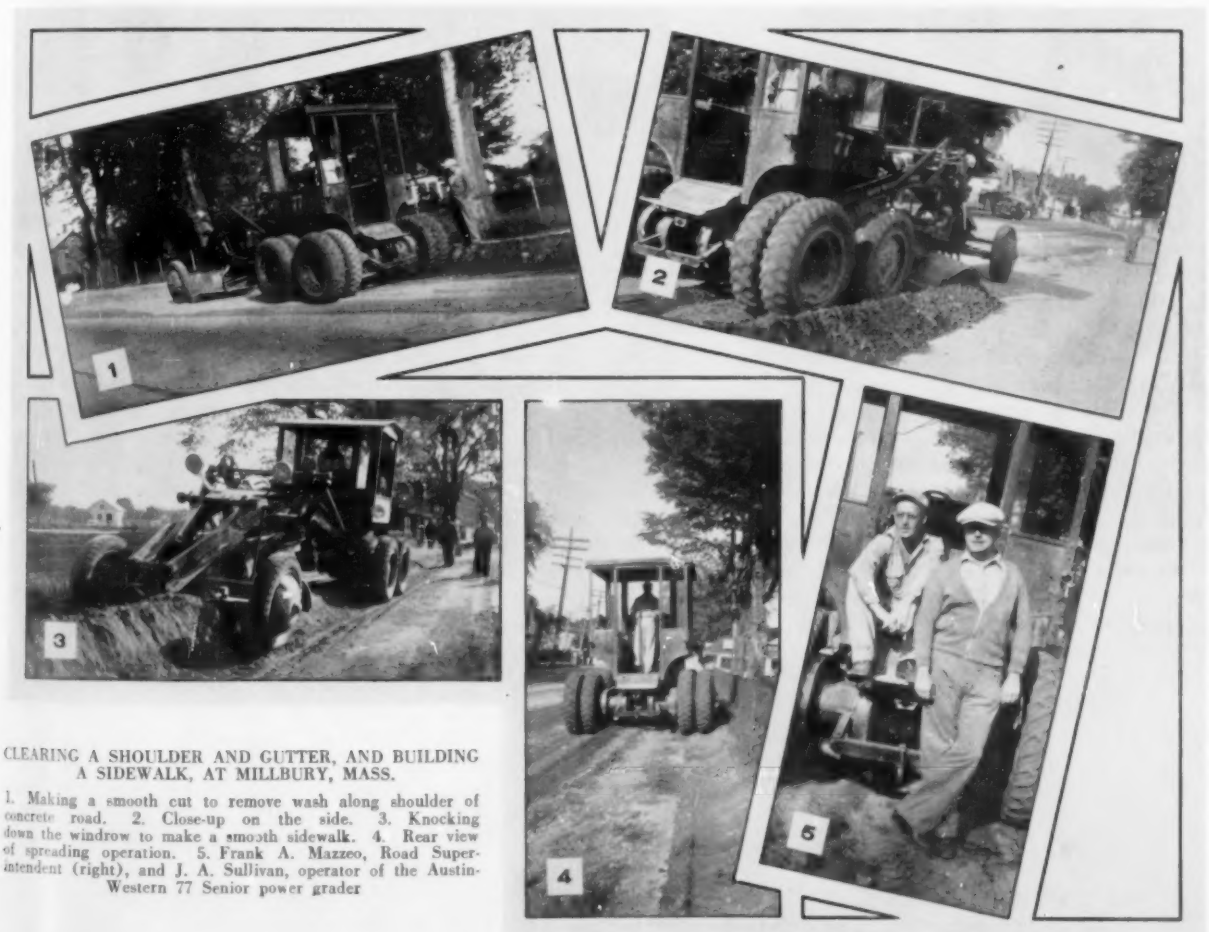
Power Grader Is Effective Tool on Street Work in Millbury

A Massachusetts Town Handles Street Construction, Maintenance and Snow with a 10-Wheel Grader

A FEW months ago we received a report from Frank A. Mazzeo, Road Commissioner of Millbury, Mass., on which he stated, "We can do almost everything with our power grader." On our next New England trip we dropped in to find Mr. Mazzeo watching his Austin-Western 77 Senior grader cleaning up a heavy deposit of gravel along the shoulder of a concrete pavement on the Providence road and laying down a new sidewalk above the high-water line of the average rain storm.

With the exception of mixed-in-place operations, which are not on the road program in Millbury, the power grader takes part in just about every job. It goes in and widens gutters preparatory to oiling them to prevent washing during average rains, it shapes up all the 96 miles of roads in the town, only 9 miles of which is paved, the rest being gravel and oiled roads. The power grader was purchased in the spring of 1937 and has been run over 3,000 miles in its work. The upkeep has been very low, consisting entirely of the purchase of new cutting edges for the blade. It can be well understood why these purchases must be made when one knows that the grader is used to dig out boulders up to one cubic yard in size.

For paving some gutters and steep streets, the town uses bituminous concrete from a local quarry of the General Crushed Stone Co. Even when this is used, the grader gets its share of work shaping up the road preparatory to the hand spreading of the pre-mixed material. One of the most thoughtful pieces of maintenance carried on in Millbury is the protection of the main roads of the town by the oiling or paving of all aprons and approach roads where there is a wash of stones down onto the main roads. This puts an end to the expense of clearing the washed-in gravel after every storm. If such material is not removed, it is a constant hazard to traffic and adds a greater burden of



CLEARING A SHOULDER AND GUTTER, AND BUILDING A SIDEWALK, AT MILLBURY, MASS.

1. Making a smooth cut to remove wash along shoulder of concrete road. 2. Close-up on the side. 3. Knocking down the windrow to make a smooth sidewalk. 4. Rear view of spreading operation. 5. Frank A. Mazzeo, Road Superintendent (right), and J. A. Sullivan, operator of the Austin-Western 77 Senior power grader

wear to the surfacing material on the main road.

In winter the power grader is just as busy as in summer, for it is equipped with an Austin-Western V-type plow on front, and with the front plow and the regular 12-foot blade of the grader it clears all the roads in the town. When the snow is hard-packed, or after a sleet storm, it is sometimes necessary to apply the full 12,000 pounds pressure on the grader blade, and this has not yet failed to remove any ice or hard-packed snow from the surface of the streets. They still have the scarifier of the machine in reserve to use as a last resort.

Paving Burbank Hill

Burbank Hill is a steep residential street on the edge of Millbury which had caused considerable trouble with the deepening of the gutters by washing. It was decided to repave this and eliminate all gutters except an 18-inch cobble gutter. The street on an average 10 per cent grade was shaped up with the grader, and the old washed gutters were filled by blading from the center of the road, producing a shape such that the water would be carried over the entire surface of the street instead of piling up in the shallow gutters on the sides. A penetration surface was laid and sealed with ¾-inch trap rock at a cost of only $2,000 for 0.3-mile, including the reshaping and paving.

Other Equipment

In addition to the Austin-Western 77 Senior power grader with its Buda engine, the town of Millbury owns a 110-foot Ingersoll-Rand portable compressor, a Chicago-Pneumatic jackhammer, a paving breaker and tamper, and an Austin-Western 10-ton Autocrat roller.

The regular road crew of Millbury consists of six men and the operator of the equipment. The town owns no trucks, having little use for them except during special operations. It hires all trucks, thus doing away with the constant shifting of new drivers on the trucks, and when work is finished there is no expense for maintenance of trucks or replacement of tires. The 1938 budget of Millbury for all road operations, including snow removal, was $30,000 for the 96 miles of well-maintained streets. Frank A. Mazzeo is Road Superintendent, and J. A. Sullivan operates the power grader and other equipment used for road work. T. R. K.—898.

Making Icy Streets Safe for Motor Traffic

Experience in Syracuse, N. Y., with Common Salt, Calcium Chloride, Cinders and Sand

By GEORGE H. SANBORN
Deputy Commissioner of Public Works, Syracuse, N. Y.

WITH the approach of winter many of the northern cities and townships are again confronted with the problem of bad and hazardous driving conditions. Probably the most troublesome of these is the ice condition which follows quick thaws and sleet storms. Records show that a great many of the most serious accidents are due to these conditions—even among careful and safe driving citizens.

During recent years much time and effort have been expended by the Safety Divisions of our Chambers of Commerce, automobile manufacturers and various other groups conducting safety campaigns and researches in order to make driving safer for the ever-increasing motor traffic.

The city of Syracuse is situated in the snow belt and has been developed on and between two hills, one at the east and one at the west. This of course gives the city administration probably one of the worst ice and snow conditions that exist in this country, making our problem of treating the streets, to prevent skidding, a most serious one.

In addition to the hill problem we have the same condition that exists in all cities regarding boulevard stops, school crossings, traffic lights, approaches and intersections.

Treating Paved and Unpaved Streets

Since not all the streets on these hills are paved, we have one method of treating unpaved streets and another for those that are paved. Our treatment for unpaved streets is the spreading, by hand, of cinders with a mixture of calcium chloride or salt. The approximate proportionate mix to be used is 80 pounds of chemical to the cubic yard of cinders.

Our treatment for paved streets is somewhat different, inasmuch as we use sand entirely as a grit mixed with either salt or calcium chloride. In this mix we use 80 pounds of chemical per cubic yard of sand, spread with a mechanical spreader. From experience we have found that this paved street treatment has proved to be the cleanest, most effective and economical. If cinders are used instead of sand, they whip to the gutters, thaws wash them to the basins, where most of them float through the trap and into the sewers. Eventually this deposit enters the treatment plant, causing considerable extra work. Another condition resulting from the use of cinders is the eventual cleaning of sewers, which is no inexpensive task.

By the use of sand as a grit, not only is this trouble eliminated but the spring cleaning of streets is done in less time and at lower cost.

We realize that opinions differ regarding the most effective of the two chemicals generally used in the treatment of icy streets. In our opinion there is not much difference which chemical is used. Of course, salt costs less than calcium chloride and may not work quite as fast, but we believe it to be a very effective chemical in treating all-around city ice conditions.

Non-Federal Public Works

The Critical Problem of the Construction Industry

By WILLIAM STANLEY PARKER, F. A. I. A.

WE read editorials on the ups and downs of WPA and about the long-continued need for Federal spending on construction through PWA. There are still many business men and even public officials who feel that the greatly increased amount of public construction that has been going on since 1934 must be stopped, being oblivous of the fact that, in reality, much *less* has been going on in spite of the greatly increased programs of the Federal Government.

In 1934 and 1935 the total of all public works (Federal, state, and local) was about a billion dollars less, each year, than the total in 1930. In 1936, owing to greatly increased WPA construction activity, the peak of 1930 was slightly exceeded; but 1937, as estimated, again dropped to 600 million less than 1930.* The annual average of 1934 to 1937 was nearly 600 million less than 1930.

The reason, of course, was the drastic reduction in construction activity, during these years, by non-Federal governmental agencies—state, county, and municipal. In this category of construction, one of the largest, is found the most significant and disturbing condition in the construction industry. It is the one and only major section of the industry in which there has been no recovery since 1933. The diagram, which illustrates the figures published by the Department of Commerce, shows that in 1933 the total of all non-Federal public construction was $1,225,000,000. This gradually grew to $1,430,000,000 by 1936, but the preliminary estimate for 1937 shows it back to $1,300,000,000, or substantially the low point again. At the peak in 1930 the total was $3,288,000,000.

In terms of the unemployed these figures mean that, ever since 1933, states, counties, and municipalities have employed nearly two million less on public works than during the years preceding the depression. These two million constitute a sizable part of the unemployment problem that the Government is trying to solve with WPA and PWA.

Private enterprise has shown some gains in construction activity in almost all branches, totaling about a third of its loss. Public utilities, including equipment, appear to have regained over half of their loss. Non-Federal public agencies alone remain frozen at or close to their lowest point in 1933. They have continued to take Federal grants, but

* "Construction activity in the United States 1915-37." Department of Commerce Bulletin. Domestic Commerce Series, No. 99.

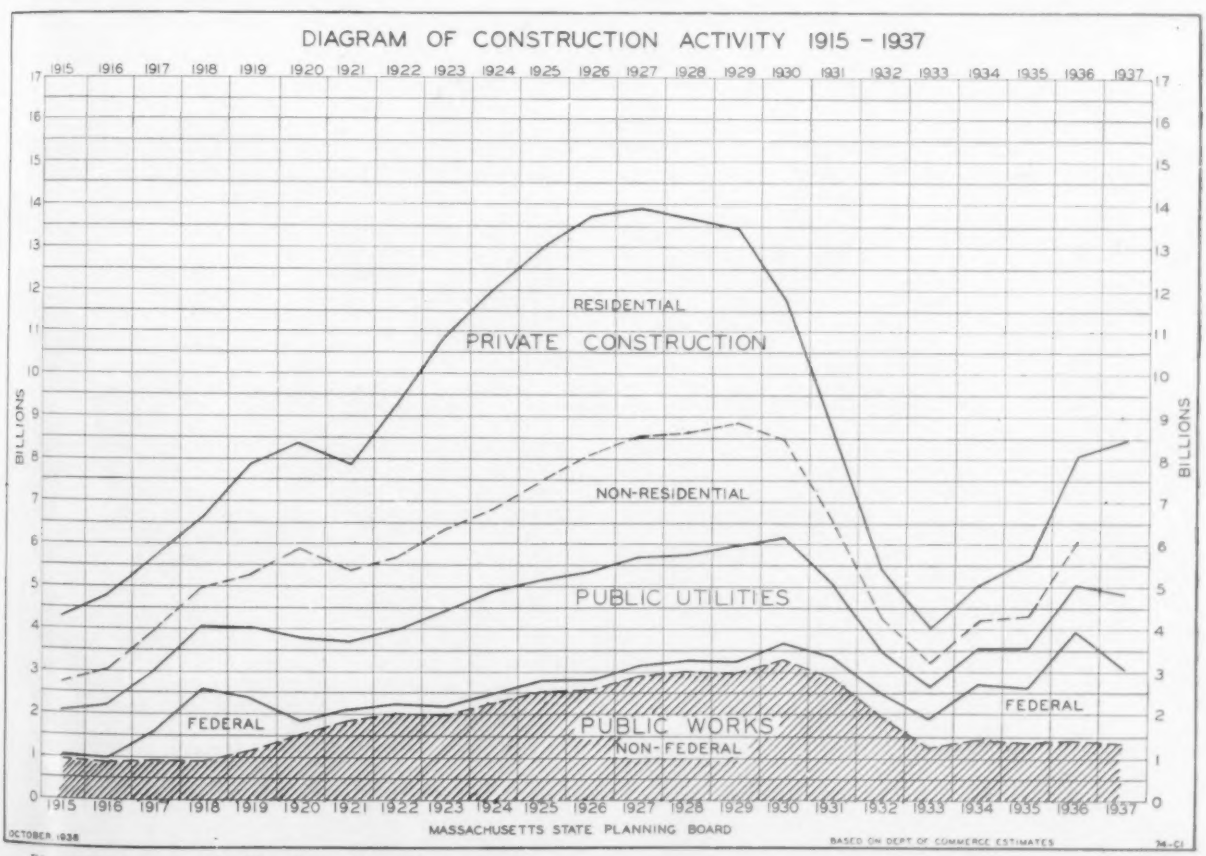


Diagram by courtesy of the Massachusetts State Planning Board
The hatching has been added to the diagram to emphasize particularly non-Federal public works

these grants have not succeeded in stimulating them to increase their own expenditures on construction as an aid to recovery.

Doubtless in many instances local financial difficulties are an adequate reason. It is hard to believe, however, that this is universally true. A Treasury Department report indicates that the net bonded debt of non-Federal agencies is some 300 million less than in 1933.

Whatever the reasons may be, the fact remains that the inability, or unwillingness, of state and local governments to pick up a larger share of this construction load is the major problem of the Federal Government in getting activity in the capital goods industry back to a more adequate total.

The first step is a more general understanding of this fact. The next step is perhaps the development of Federal policies in regard to loans and grants that will create an inducement to this end.

London County Council Again Urges Parliament to Authorize Site-Value Taxation

TO open up a new source of municipal revenue and thus to relieve the general body of taxpayers of part of the burden otherwise falling upon them, the governing body of England's metropolis, the London County Council, has voted to promote in the coming Parliamentary Session a bill for the rating of site values.

In a recent statement to the press of Great Britain, signed by the Leader of the London County Council, Herbert Morrison, M. P., the case for site-value taxation is summarized:

"As urban communities grow, land values rise. The activities of a great population, its commercial and business enterprise, the concentration of a great community within limited space, puts the landowner into the position of being able to demand a higher and higher price or rent for his land. Moreover, the municipal services themselves, which make civilized urban life possible and increase public amenities, assist the landowner to command a higher price for his land.

"The opening of a public park, the establishment of the Green Belt, highway improvements, a new bridge and a number of other municipal developments, may well have the effect of increasing the value of the surrounding land. The money goes into the pocket of the landowner, who has done nothing to create the added value.

"Moreover, when the municipality wishes to buy land for a public improvement, the landowner naturally seeks to get the highest price he can from the local authority. In a large proportion of cases he is paid out of public funds a substantially higher figure than he himself paid for the land."

A letter explaining the L.C.C. proposals* by Charles Latham, Chairman of the Finance Committee, has recently been published in numerous newspapers, including important dailies like the *Manchester Guardian* and the *Birmingham Post*. To quote in part:

"Under the present rating system the burden of local rates falls entirely upon the occupiers of property. The share borne by each occupier is broadly determined by the rental of the premises he occupies. As those who are least well off generally have to spend a larger proportion of their incomes on rent than those who are better off, the existing method of rating [local taxation] imposes an undue and unfair burden upon those least able to bear it. There are no grounds of equity or justice on which this can be defended, and the position has been made much worse in recent years by "de-rating," which has increased the amount of rates falling on occupiers of houses and shops and on non-industrial premises. . . .

"The County Council desires to remedy these grievances by obtaining from Parliament powers to enable it to levy a rate on site values. This rate would be imposed in respect of all sites according to their annual site value; that is to say, the amount for which any site could be let with security of tenure if there were no buildings or improvements on it.

"The amount of rate which the Council seeks power to raise is 2 shillings in the pound on the annual site value [equivalent, of course, to 10% of the annual rental value of the land].

"This would not be an additional burden upon the occupiers of property, but would be payable by the owner of site value. In the case of long leases, where lessee as well as freeholder was in enjoyment of part of the site value, the rate would by a simple method of deduction be shared between lessor and lessee. The collection of part of the municipal revenue by a rate on site values would enable a reduction to be made in the amount collected on the existing basis, and would thus reduce the charge on occupiers.

"It is sometimes thought that the land-value rate would be shifted by owners of land onto their tenants by increasing their rents. This is not so. The price or rent which has to be paid for land is a matter of demand and supply. As the site-value rate would fall upon vacant land, and render it uneconomic to hold such land out of use, it would have the effect of increasing the available supply of land, and prices or rents would tend to fall rather than rise.

"It is also occasionally suggested that the proposed change would be detrimental to the small occupiers who have bought their own houses. This is not so. In such cases the site value is usually a small fraction of the total value of land and building, while in the valuable central areas of cities the site value is a high proportion of the total. The effect of the change would be to call upon the high values of the central areas to make a higher contribution. The owner-occupiers of small dwelling-houses would make a smaller total contribution to the rates than they do at present.

"The importance and value of the Council's proposal is accentuated at the present moment when London is faced with proposals for highway improvements which, according to the Minister of Transport, may ultimately cost 80 to 120 million pounds. A very large proportion of that sum will be for acquisition of land and compensation for property affected. On the other hand, there is no doubt that the end result of such improvements by improving access to site will be a large increase in its values. Indeed, all properly devised public expenditure which makes a town a better place in which to live or carry on business tends to increase land values. It is only fair that values which arise by reason of the very existence of the community should be called upon to make some express contribution to public expenditure, and that the homes and industries of the people should be relieved of some part at least of the undue burden now imposed upon them.

"These are some of the main considerations upon which the Council's proposal is based, and I am confident that when they are fully understood it will obtain general and unqualified support."

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* For previous L.C.C. action on this subject, see article entitled "London County Council Urges Land-Value Taxation," in THE AMERICAN CITY for August, 1936, page 73.

A Municipal Seashore Resort

Bridgeport, Conn., Operates This Enterprise Successfully— Naturally Filtered Salt Water Used for Swimming Pool

ONE of the most interesting and appreciated services rendered its taxpayers by the city of Bridgeport is Pleasure Beach Park, an island of approximately 37 acres which is only ten minutes' ride from the center of the city, and 75 per cent of which is devoted to an amusement park and the rest to parking and roadways. In addition to an excellent beach ½-mile long on Long Island Sound, there is a 150 x 50-foot salt-water swimming pool supplied with clear filtered salt water by a wellpoint system using the sand of the island as a natural filter.

Pleasure Beach Park was originally a private enterprise, operated by private concessions on city-owned land with city-owned buildings. Unfortunately, the park was permitted to run down and rentals were delinquent, so that on July 3, 1937, the city placed a receiver in charge of the entire enterprise. The first step in taking over the park concession was to appraise the relatively small proportion of properties owned in the names of the private corporations, so that arrangements could be made to purchase them outright. The city's appraisal was approximately $6,300 and the appraisal is now in court for acceptance.

Improvements

At the close of the 1937 season, after Labor Day, the city began to make improvements in Pleasure Beach Park, paying for them out of its current budget, the work being done by the City Maintenance Department operated under the direction of the Department of Public Works and the City Comptroller. A new pier was built, requiring a capital investment of $29,500. Other rehabilitation, largely maintenance, required the expenditure of about $22,000, including the installation of a Griffin wellpoint system to furnish naturally filtered sea water for the 150 x 50-foot swimming pool, which varies in depth from 3 to 8 feet and is equipped with high and low diving boards. A continuous flow of water through the pool is secured by pumping from the fifty wellpoints, which are guaranteed to deliver a minimum of 20 gallons per minute each. This wellpoint system will serve as fire protection for the park, as well as for furnishing water to the pool. A 6-inch cast iron line is laid from the Griffin wellpoint pump to the pool, where a siamese is inserted with valves so that the salt water may go to the pool or through another branch to 200 feet beyond the end of the pool, where a hydrant is located for the use of a fire pumper. The guaranteed output of the Griffin wellpoint system as installed will adequately serve a 1,000-gpm pumper.

A 6-inch cast iron fresh-water line, which is reduced to 4 inches on the island, is used to furnish water for drinking and sanitary purposes. To have put an 8-inch cast iron line across the creek to the island for fire purposes would have cost $30,000. The wellpoint system, serving a double purpose, was installed for much less than this.

In winter, instead of draining the pool and permitting frost to damage it, it will be kept filled and logs will be floated on the surface to prevent the formation of ice.

Special Attractions

Access to the island is by a 20-foot roadway, and there is no charge for admission and parking is free. Pleasure

A HOLIDAY CROWD AT PLEASURE BEACH PARK, A MUNICIPAL ENTERPRISE OF BRIDGEPORT, CONN.

THE WELL-POINT INSTALLATION, BEFORE COVERING, WHICH SUPPLIES NATURALLY FILTERED SALT WATER FOR THE SWIMMING POOL AND FOR FIRE SERVICE

Beach Park was opened for the 1938 season on May 15. There are dances on Sunday nights in a spacious ballroom with leading "name" bands which play at other New England shore resorts during the season. The Bridgeport Symphony Orchestra, a WPA project, gives weekly concerts of the finest music on Monday evenings in the same place throughout the season.

The park is equipped with an excellent Shore House serving shore dinners for 75 cents to $2.75, lobster dinners for $1.25 to $1.75, and chicken and steak dinners for $1.25 to $1.75. There are also special dinners for children and a complete a la carte service. Noon luncheons and blue plate specials are served for 60 cents and $1.00.

Pleasure Beach Park is a 10-cent park; that is, all the rides in the special attractions are either 5 or 10 cents. Among the attractions are Scooter Planes, Skyrockets, Aero-Planes, Scooter, Whip, Octopus Ride, merry-go-round, Speedway, miniature railway, Penny Arcade, Skee-Ball games, novelty games, shooting gallery, dance hall, roller skating, pony tracks, and Tumblebug. The latest addition to the amusements is a fleet of hand-lever-propelled water ride boats which enable those who cannot use oars effectively to readily operate boats of rowboat proportions on the water near the Park. There are also a kiddie playground, numerous lunch stands, picnic groves and athletic fields, an amateur stage, and fireworks on special occasions.

Pleasure Beach Park is owned and operated by the city of Bridgeport, under the direction of Perry W. Rodman, City Comptroller, as Park Director. T. R. K.—896.

Another State Supreme Court Upholds Public Housing

NATHAN STRAUS, Administrator of the United States Housing Authority, calls attention to an important decision of the Supreme Court of South Carolina, upholding the constitutionality of the State Housing Authorities Law, as clearing the way for South Carolina's full participation in the nation-wide $800,000,000 slum-clearance and low-rent rehousing program.

The South Carolina decision brings to nine the number of state tribunals which have passed favorably on the validity of various provisions of public housing legislation. In addition to the Supreme Court of South Carolina, the highest courts of Georgia, New York, North Carolina, Kentucky, Alabama, Pennsylvania and Florida have upheld provisions of similar state housing statutes. Administrator Straus comments:

"The way is now cleared for the state of South Carolina to engage in a large program of slum clearance.

"So far, the United States Housing Authority has set aside more than $574,000,000 of the $800,000,000 authorized by Congress, and contracts for loans have been executed for more than $232,000,000 and additional contracts are being signed every month. The new homes which will rise in the nation over the next two years, under the Government rehousing program, will confer a threefold benefit. Slum dwellers will benefit, being given an opportunity for new and better living conditions. Wage-earners will benefit, being called back to work on productive jobs. Taxpayers will benefit through the reduction in expenditure of local governments, for when you tear down the slums, it means less disease, less juvenile delinquency, less crime, and reduced expenses for hospitals, insane asylums, reformatories and jails."

The decision by the Supreme Court of South Carolina sustaining the constitutionality of the South Carolina Housing Authorities Law, was rendered on October 12, in the case of *W. E. McNulty v. The Columbia Housing Authority and the City of Columbia.* The plaintiff in this test case (a taxpayer) brought suit against the Housing Authority of the City of Columbia to enjoin that body from issuing bonds and acquiring property for low-rent housing purposes. The city of Columbia was made party defendant to prevent it from entering into a contract to demolish substandard dwellings in the city and from entering into a contract to furnish municipal services to the Housing Authority and its tenants. The Court held:

1. The Housing Authority of the City of Columbia was organized for a public purpose, and its functions of clearing slums and constructing low-rent housing projects were public and not private purposes.

2. The Local Housing Authority is a public agency organized for a public purpose, and the provision of the state law conferring upon it the power of eminent domain is a valid enactment.

3. The bonds and other obligations of the Housing Authority of Columbia issued to finance the development of the low-rent housing project were not "debts" within the meaning of the constitution of the state.

4. All real and personal property owned by the Housing Authority of the City of Columbia is, under the constitution, exempt from all ad valorem taxes and special assessments.

5. The city of Columbia under its police power is authorized to effect the elimination of unsafe or insanitary dwellings.

6. Neither the Housing Authorities Law nor the Cooperation Act contains provisions in conflict with the constitution of the state.

7. The city of Columbia may legally donate real estate to the Housing Authority and may render the Local Authority municipal services without charge.

THE ATTRACTIVELY LANDSCAPED BUILDING HOUSING THE PUMPS AND SCREENS OF THE ST. PETERSBURG, FLA., SEWAGE PLANT

Sewage Screening at St. Petersburg, Florida

Plant Located at Coast Guard Station Adjacent to Municipal Airport

SITUATED in close proximity to the large Coast Guard hangars at the Municipal Airport of St. Petersburg, Fla., the sewage screening plant is attractive architecturally and well-landscaped by judicious plantings of trees and shrubs. Even the chute beneath the screenings hopper is well disguised by the architecture and landscaping.

Sewage reaches the plant through a 60-inch concrete interceptor at an elevation 16 feet below sea-level. The grade of the main sewer is 0.03 per cent. A Brunnotte articulated self-cleaning bar screen is set in a deep pit at the entrance channel to remove coarse material before the sewage is raised by pumping to the fine screens. The screenings from the Brunnotte coarse screen fall onto a metal chute, from which they are pulled by hand into a hopper. They are then handled by an ejector to the main screenings holder.

Pumping Equipment

The sewage is raised to the fine screens by four Fairbanks-Morse vertical centrifugal low-head pumps, as follows: one 8-inch 2,600-gpm pump driven by a 30-hp F-M motor; one 10-inch 4,000-gpm unit driven by a 50-hp F-M motor; one 14-inch 10,000-gpm unit driven by a 100-hp F-M motor; and one 14-inch 10,000-gpm emergency unit driven by a 4-cylinder 150-hp Sterling-Dolphin gasoline engine. These pumps operate against a head varying from 21 to 29 feet, and both pumps and motors have given excellent service for the past 10½ years. As the flow of sewage rises and falls in the interceptor, the flow to the pumps is controlled by large hand-operated gate-valves on the suction of each pump.

Fine Screens

The low-lift pumps raise the sewage to a concrete flume, from which it flows to two Tark cylindrical screens, 8 feet long and 8½ feet in diameter, with slots 3/64-inch wide by 2 inches long. These screens are continuously cleaned by cylindrical brushes shaped to fit the curved surface of the screen and running at 40 to 70 feet per minute, while the screen revolves one complete turn in 3 to 4½ minutes. The brushes remove all material accumulating on the outside of the screens as the sewage flows through and on to the effluent channel or flume, where it is sterilized with 8 parts per million of Mathieson liquid chlorine controlled by a Wallace & Tiernan S.A.S.V. vacuum-type chlorinator located on the ground floor. Chlorine is fed to the sewage only when the tide is coming in. The sewage flow is measured by a Builders Iron Foundry 15 x 30-inch venturi meter with a 24-hour recording chart. The maximum flow handled by the screening plant is 20 mgd. The present daily pumpage on a yearly average varies between 4½ to 5½ million gallons. The chlorine-handling equipment is built so as to place ten chlorine cylinders on the platform scale at one time, and a 10-cylinder manifold facilitates the shifting of the cylinders.

The effluent line is a 30-inch cast iron outfall extending 980 feet from the plant into Tampa Bay. The depth of water at the discharge of this line averages 12 feet. The outfall sewer is laid on a grade of 1.7 per cent.

Removal of Screenings

The screenings from the Tark screens fall into a hopper at the end of each screen and are removed to the storage hopper in the tower at the end of the building by a pneumatic screenings ejector made by the Pneumatic Concrete Machinery Co. The ejector is controlled by hand. An Ingersoll-Rand Imperial Type-20 air compressor located on the ground floor of the plant automatically maintains a pressure of 70 pounds per square inch in a 125-cubic-foot capacity air receiver. A pressure of 50 to 75 pounds is required to move the screenings from the hopper to the storage bin. The storage bin is emptied daily into a watertight truck, and the material is hauled away and buried. The screenings hoppers are blown to the storage

INTERIOR OF THE ST. PETERSBURG SEWAGE SCREENING PLANT, SHOWING THE TWO TARK FINE SCREENS IN THE FOREGROUND AND THE VERTICAL-SHAFT SEWAGE PUMPS IN THE BACKGROUND

bins an average of nine times daily. A 5-ton wall crane is used to move equipment for repairs and was used originally to set the equipment when it was installed in the plant in 1927.

During 1937 a total of 1,823,000,000 gallons of sewage was pumped at this plant. The coarse and fine screens together removed 39,145 cubic feet, or 1449.8 cubic yards, of sludge and screenings. This amounted to 1,231 tons, figuring the wet screenings at 63 pounds per cubic foot. It is estimated that the coarse screens removed about one-sixth of this volume of screenings.

This screenings plant was completed in August, 1927, and put into commission September 7, 1927. It receives all the sewage of the city by gravity flow. The building was designed by Frank F. Jonsberg, a local architect, and the layout of the equipment and the underground work were done under the direction of Ernest Kitchen, formerly Director of Public Works, and E. A. Nordstrom, Structural Engineer of St. Petersburg, Fla. The plant is operated under the direction of Dan M. Stahl, Superintendent of Sewers, with three assistant operators working 8-hour shifts.

T. R. K.—819.

The No-Man's-Land in Urban Housing

ANSWERING the question as to whether the publicly subsidized housing program, as typified in the USHA projects, will compete with private industry, Nathan Straus, Administrator of the United States Housing Authority, speaking at the annual meeting of the National Association of Real Estate Boards in Milwaukee, November 10, said:

"Here are the figures. Of every three families living in cities and towns of the United States, one has an income of less than $1,100 per year. These families can afford rentals of less than $20 per month. These families are the income groups from which tenants of USHA projects will come.

"Of every three urban families, one has an income of more than $1,750 per year. These families can afford to buy a house which cost $3,500 or more. They can afford rentals upward from $30 per month. Taking the country as a whole, this is the field now being served by private industry.

"Except in very special circumstances, the public housing projects will not accept tenants with an income above $1,100, and, except in very special circumstances, private builders do not reach families with incomes less than $1,750. There is a gap, a no-man's-land of housing, made up of the families with incomes from about $1,100 to about $1,750 a year, and one-third of all the urban families in this country are in that group. Government subsidized housing is not built for them, because their incomes are too high. The private building industry has not found out how to build for them, because their incomes are too low. That no-man's-land constitutes the challenge to the private building industry.

"May I emphasize that the figures I have presented are national averages. They are for the country as a whole. While not exactly accurate for every city, they do give a fair and true picture of the housing market.

Public Aid a Stimulus

"Recently the real estate industry, which earlier had not been in full sympathy with the government housing program, has shown signs of a change of heart. Many of you, indeed, have been in my office during the past year either as members of local housing authorities or as representatives of real estate boards interested in furthering slum clearance projects in your cities. The turn of the tide of opinion in your industry is well evidenced by an article which appeared only a few weeks ago in the *Pittsburgh Sun-Telegraph*, over the signature of H. H. Howard, the real estate editor:

" 'What effect will the Pittsburgh Housing Authority's subsidized low-rent housing projects have on real estate here in general?'

"His conclusions are:

" 'Surrounding property will benefit to some extent, largely because the projects will bring more buying power into the district, and also because the park-like character of the new projects will attract a fringe of families able to afford better housing,' and,

" 'The whole housing movement will be greatly stimulated if for no other reason than that the construction of these great projects will increase the public's interest in housing and the public's appetite for new housing.' "

Sludge Dewatering Filters—
Maintenance and Lubrication

Vacuum Filters Are Designed to Continuously and Automatically Dewater Sewage Sludges

By WARD H. PITKIN
Oliver United Filters, Inc., New York City

IN the operation of a sewage sludge dewatering filter conditioned sludge is fed by gravity or pump to the filter tank at practically the capacity of the filter. Excessive pumping causes an overflowing of the conditioned sludge from the filter tank and usually decreases the dewatering rate because it breaks the floc. The cake forms rapidly on the surface of the drum for approximately 25 per cent of the cycle. As it emerges from the sludge in the filter tank, air is drawn through the cake displacing the water that has been released by coagulation. Approximately 85 per cent of the total water is removed. The moisture remaining in the cake is so securely held that further drying by heat is the only satisfactory method of removing it.

Starting a New Filter

All parts of the filter should be lubricated thoroughly before starting the electric motors. Motor rotation should be checked carefully, for improper rotation is not apparent in all cases. Normally this is done by the contractor and inspected by a representative of the manufacturer. The filter drum of an Oliver filter must be thoroughly soaked to properly swell the staves. Then fill the filter tank as full as possible with clean water and allow the drum to soak. By rotating the drum one quarter-turn occasionally all parts will swell uniformly. Warm water will expedite swelling. When shutting down for any considerable time the drumstaves should be prevented from drying out by occasional sprinkling.

The vacuum system should be tested by shutting off both gate-valves in the vacuum lines close to the automatic filter valve. With the vacuum pump operating, the gage at the receiver should read approximately 26 inches at sea-level. If the reading is lower, all pipe connections and valve bonnets should be tightened and the check-valve in the filtrate pump discharge line inspected.

Care of the Automatic Valve

Vacuum lines to the filter valve are equipped with flexible connections to allow the valve to seat properly at all times. Do not attempt to seat the valve by tightening the valve stem nut. A low vacuum causes greater pressure to be exerted between the valve face and its seat than can be given by the spring and nut. The valve will last for years if properly installed and lubricated.

Care of Filter Cloths

The life of either cotton or woolen filter cloths is materially increased if they are securely held to the drum by the wire winding. The correct dosage of chemicals to coagulate the sludge before dewatering is important for long cloth life. Either over- or under-dosing is detrimental. It is not uncommon to have woolen covers last one year and cotton about six months. All covers should be thoroughly cleaned by hosing once a shift during operation and also when the filter is shut down.

The Scraper or Cake Deflector

The scraper is to deflect the cake to a conveyor or hopper. The cake should fall practically free from the drum, aided by its own weight. Therefore, the pressure holding the scraper against the drum wires should be only sufficient to prevent it from riding over the cake.

The Conditioned Sludge Agitator

The agitator is assembled and balanced at the factory and should require no further adjustment. It may be removed or installed as a unit without removing the drum. To do this, remove the connecting rods and revolve the agitator by hoisting with a tackle attached to each end. Remove the spider caps and then the assembly may be lifted to one side. To replace, reverse the operations. This design allows the agitator to be cleaned and painted easily, an important feature.

Care of the Vacuum Pump

Oliver dry vacuum pumps are designed especially for vacuum requirements of sludge filter installations. The inlet and discharge valves are identical in size and are interchangeable. They are easily removed without disturbing the pipe connections. The discharge valves are placed at the bottom of the cylinder to afford quick drainage of the condensed vapor or small amounts of filtrate spray that may possibly enter the pump.

If any valve is not tightly seated, vibration can be felt when a finger is placed on the acorn nut or valve screw that holds the valve on its seat.

The Filtrate Pump

Oliver centrifugal pumps have impellers and stuffing-boxes designed especially for filtrate removal from vacuum receivers. The operation of this pump is very important. High vacuum is carried on the suction side; therefore, the stuffing-box must not leak air, because this will immediately decrease the capacity of the pump. Water lubrication of the stuffing-box is best. The bottom of the stuffing-box is drilled, tapped and plugged. Make the water inlet connection here, and the outlet at the grease connection on top. No grease is necessary with water lubrication.

Operation of the Vacuum Receiver

The receiver on a vacuum filter is to decrease the velocity of the mixture of air and filtrate coming through the filter cloth so that a separation will occur. The float head prevents the filtrate from flowing into the vacuum line or vacuum pump when abnormal conditions exist.

In case of a failure of the filtrate pump, or a building-up of filtrate in the receiver from any other cause, the float becomes partially submerged, allowing the spring to open the relief valve and close the safety valve. This closes the vacuum line to the pump and opens the receiver to the atmosphere. The reduced vacuum in the receiver enables the filtrate pump to take hold and empty the receiver, thus restoring normal conditions. An operator should always investigate the cause of a rising float, because it indicates an abnormal condition.

The float is usually a heavy sheet metal cylinder suspended from the valve stem by links. Its weight is sufficient to hold the relief valve on its seat positively when the spring tension is properly adjusted. Be sure that the valve stem slides freely and is not bent and that the valve is seating properly.

Lubrication of the Filter

All moving parts should be thoroughly lubricated before the filter is started. The bearing surfaces are of ample size to give satisfactory service for years if correct lubrication is maintained.

Main Worm and Gear.– Keep the oil well filled to the level indicated on the front of the housing with SAE 160 EP gear oil. Check the oil level every shift. Always fill the well through the inspection cover at the top.

Trunnion Bearings.—These are lubricated by gravity sight feed lubricators using SAE 160 EP gear oil. Adjust the lubricators to provide ample lubrication without waste. Do not allow the lubricators to become empty.

Agitator Worm Reducer.—Use SAE 160 EP gear oil. Remove the filling plug at the top and fill with oil to the top of the oil level indicator when standing. When the reducer is operating, this level will drop, and if it is filled to the top of the indicator when operating, spillage will result when the reducer is shut down.

Drum Drive Transmission.—Lubricate according to the manufacturer's instructions furnished with the drive.

Motors.—These should be lubricated according to the manufacturers' instructions attached to the motors. Dynamo oil is usually satisfactory for sleeve bearings, and ball-bearing grease for motors with ball or roller bearings.

Agitator Shaft Bearings and Other Points.—These are fitted with high-pressure grease-gun fittings. They should be lubricated at least once each shift with a fluid type extreme pressure grease.

Filter Valve.—Gunfil lubricators are supplied for use on automatic filter valves. Each lubricator is equipped with a piston actuated by a spring and will continue feeding grease to the valve face until all the grease has been used. The stem projected through the cap indicates the amount of grease in the cup. These lubricators are filled, without removing the cap, by means of Alemite push type grease fittings on the side of the cup. Use Alemite grease or its equivalent. Two lubricators are supplied with each valve, one for the outer face and one for the inner face.

Vacuum Pump.—Each vacuum pump has a force feed lubricator with a connection to the inlet chamber on top of the cylinder. This lubricates all valves as well as the piston and cylinder. Fill the lubricator with SAE 40 oil, as this oil gives better valve action than the lighter crank-case oil. See that the oil line is full and delivering oil at the far end. Adjust the lubricator according to manufacturers' instructions. All bearings are enclosed and splash lubricated. An oil duct in the crank-guard catches oil splashed by the crank and directs it into crank-shaft bearings. The cross head is lubricated through another duct from the oil splash. Fill the crank-case with SAE 30 oil. Install a standpipe in the drain connection high enough so that when it is filled the crank dips 1 inch to 1½ inches into the oil at its low position. Maintain the oil at this level. Drain the crank-case once a month, clean thoroughly with kerosene and refill with new oil.

Filtrate Pump.—Lubricate the roller bearings with a good grade light machine oil. Remove the pipe plugs from the top of the bearing housing and the street ell and fill the oil well until the street ell overflows. Inspect frequently. The pump stuffing-box is lubricated with grease or water. If grease lubrication is used, it must be maintained in good supply, and the gland must not be tightened any further than is required to prevent leakage.

Air Blower.—Lubricate in accordance with the manufacturer's instructions.

Housing and Blighted Areas Stressed at Realtors' Convention

CALLING attention to the fact that "our cities almost without exception have much dilapidated, insanitary housing and many blighted areas which make it impossible for great numbers of the citizens occupying these quarters to possess that reasonable decency and comfort of existence which they, as human beings, are entitled to enjoy," the National Association of Real Estate Boards at its annual convention in Milwaukee last month adopted a resolution "that this Association review and intensively study this whole situation, to the end of evolving a broad long-range program by means of which Federal, state and municipal governments will be placed in the position of cooperating with, and being helpful to, private enterprise under comprehensive plans for city rebuilding, including the elimination of quarters unfit for human habitation and the rejuvenation of blighted areas."

In his presidential address, National President Joseph W. Catherine expressed the happiness of the Association that governmental agencies— HOLC, FHA, the U. S. Authority, and local housing authorities—have joined in the discussion and have shown a very active interest in working out some plan through which public and private effort cooperatively can attack the problem of preserving and restoring real estate values in these cities. "The only way to check and overcome blight," said Mr. Catherine, "is to replan and reconstruct entire neighborhoods at a time. Rehabilitation of declining areas demands city replanning—city planning for the future."

Beloit's New Pool Features Safety, Cleanliness, and Automatic Operation

By A. D. TELFER
City Manager, Beloit, Wis.

BELOIT has built a 454,000-gallon concrete swimming pool in an unused city-owned quarry located in a 150-acre area which includes a municipal hospital and an 18-hole golf course. The objective is a recreational center providing golf, swimming, bowling, shuffleboard and picnicking.

The pool has the shape of an elongated horseshoe 160 feet long by 100 feet at the wide end, where the minimum depth is 1 foot, and 44 feet wide at narrow end, where the maximum depth is 9½ feet. The walls and floor of the pool are painted with a mixture of Medusa white portland cement, lime and calcium chloride and water. Cork lifelines stretch across the pool at the 3½- and 4½-foot levels. The pool accommodates 900 bathers at one time.

The water is completely recirculated, clarified, and sterilized every eight hours at the rate of 960 gallons per minute. The circulation of the water from the pool through the filters and back again is effected by a Fairbanks-Morse horizontal split double-suction centrifugal pump with a capacity of 960 gallons per minute against a head of 60 feet.

A tunnel around the outer edge of the pool permits workmen to enter and repair any pipe leaks which may occur, without having to close the pool. There are twenty-two openings for the filtered water to enter the pool, thereby giving fresh, clean water throughout the entire area.

The filtration equipment consists of four Permutit automatic type F vertical steel pressure units, each 10 feet in diameter, with a combined capacity of 56,500 gallons per hour when operating at a filtration rate of 3 gpm per square foot. These filters have a cast-iron deflector distributor strainer system and require no concrete subfill. They are provided with all the necessary controls, piping, valves and fittings to make a complete battery from inlet to outlet. These controls are so arranged that proper sequence of all operations of filtering, backwashing and filtering to waste are performed automatically through the operation of a master multiport pilot valve and hydraulic valves on each filter. The automatic operation is controlled by time-clock, so that the entire cycle of operations is carried out automatically at a predetermined time interval of filter operation.

Each filter is equipped with an automatic air relief valve, loss-of-head pressure gages, a sight glass and sampling cock, and also with a rate-of-flow indicator reading in gallons per minute and capable of indicating flows in either direction of filtering and backwashing. These rate-of-flow indicators are of the mechanical type.

Proportioning pressure solution-type feeds deliver a solution of alum sulphate and soda ash to the circulating stream ahead of the filters. The alum sulphate coagulates any organic and suspended matter which may be present at a controlled pH, and then this is removed by the filters.

CHILDREN'S END OF THE POOL IN BELOIT, WIS.

The coagulant and alkali feeds are adjusted to maintain the swimming pool water in slightly alkaline condition at all times. The equipment for adding coagulant and alkali includes a solution-dissolving tank, a feeding tank, gages, indicators, control piping and valves, and is capable of adjustment to meet varying operating conditions.

This type of chemical feeding equipment was selected because it utilizes alum sulphate and soda ash instead of the ordinary crystal lump alum and sal soda. Alum sulphate and soda ash are more economical than crystal alum and sal soda, and the alum sulphate and soda ash contain more active constituents. This design saves at least 50 per cent of the cost of chemicals ordinarily required for coagulation and pH control of swimming-pool water.

Chlorine and ammonia are added to the circulating stream by W & T equipment just ahead of the circulating pump to insure intimate contact of the chlorine and ammonia for complete sterilization of the swimming-pool water.

The filtered and sterilized water is returned to the pool through 22 2-inch inlet fittings spaced at equal intervals around the perimeter of the pool a foot below the scum-gutter rim. Water that finds its way into the scum-gutter either because of splashing or overfilling of the pool to flush away surface impurities is carried away by 43 2-inch overflow trough drains to the sanitary sewer wet well.

Two 2-inch suction-cleaner outlets are provided in the pool wall a foot below water level, and are connected with the suction end of the recirculating pump to permit the use of a large Tuec suction cleaner to clean the entire pool without draining it.

The bathhouse, consisting of a central basement and a clearstory section 32 x 66 feet and two one-story wings each 48 x 50 feet, is of modernistic design, developed in

random ashlar masonry and precast concrete trim. All stone for the bathhouse, as well as masonry for the wall which divides the bathhouse from a children's playground, was obtained from the quarry. There is a grand staircase leading from the quarry to the 847-car parking area, which is surfaced with crushed limestone. East of the parking area we are developing a playground with tennis courts, shuffleboard, bowling on the green, and other games.

The quarry wall, rising 10 feet above the surface of the pool, is terraced to accommodate several thousand seated spectators. Along the edge of the quarry wall and surrounding the pool is 728 feet of 48-inch ornamental iron picket fence, made by Stewart Iron Works, Cincinnati, and 264 feet of 72-inch Stewart iron fence separates the pool area from the children's playground.

The filtering and operating equipment is housed in the basement of the central section, which includes the basket-checking rooms. The office and lobby are accommodated on the ground floor of the central section. The balcony at the pool end of the building has been completely enclosed to make a substation housing three 25-kva distribution transformers and one 7½-kw series transformer and the necessary oil-switch controller and lightning arresters. Primary current on a single meter is brought underground into the substation and distributed through conduit and trench-lay cable for floodlighting the pool and playground, lighting roadways and parking spaces, illuminating the bathhouse, and for power to the cabinet in the basement. Our 22 Benjamin floodlights, fed by 3,000-volt No. 8 Habirshaw parkway cable, are mounted on six Union Metal poles. The 35 Form 79R General Electric luminaires, equipped with Holophane reflectors and refractors, mounted on Union Metal poles and fed by G. E. parkway cable, light the roads and parking area.

Canadian Housing Act Provides Tax Relief and Other Aid for New Homes

UNDER the terms of its National Housing Act, 1938, the Dominion of Canada has removed the sales tax on building materials; and because, as stated in the preamble to the Act, "high real estate taxes have been a factor retarding the construction of new houses," the Dominion Government encourages prospective home-owners to construct houses for their own occupation by relieving them of a portion of the municipal taxes.

As outlined by Horace L. Seymour, consulting engineer, of Ottawa, in a Canadian National Forum broadcast on November 6:

"Part III of the Act deals in tax assistance for homes costing $4,000 or under when built before the end of 1940 by the owner for his own occupation in any municipality that agrees, if it owns lots suitable for residential purpose, to offer to sell a reasonable number at not more than $50 per lot (or at the lowest amount it may be authorized to dispose of such lots). Under such conditions, taxes due to the building of the house only will be paid by the Federal Government as follows: 100 per cent the first year taxes are levied, 50 per cent the second year, and 25 per cent the third and final year for such tax assistance.

"The Minister of Finance, admitting the impossibility of accurate prediction, makes the assumption that in the next three years $100,000,000 of new houses may be eligible for this tax subsidy. Assuming the average tax levy to be 2½ per cent of the cost, the Federal Government would then spend nearly $5,000,000 in tax assistance in the next three years.

"It is important to note that the taxes or portion of taxes from which the owner is to be relieved is on the building, not on the land."

The Act also provides principles new to Canada for Federal relationship to low-cost, low-rental homes:

"The Federal Government is prepared to grant loans up to $30,000,000, pro rata, to urban population, for low-rental housing projects in urban communities. This should represent over $35,000,000 in developments which, on account of the low cost involved, will probably be of the apartment or multiple-dwelling type rather than single-family homes.

"Under the provisions of the National Housing Act, low-rental projects may be undertaken by the municipality or by a limited-dividend housing corporation. A municipality can obtain a 90 per cent loan from the Federal Government, but must also obtain a provincial guarantee for such loan. For this and other reasons, it seems likely that the limited-dividend corporation (composed of public-spirited citizens) must be depended upon for effective action. While it can obtain only an 80 per cent loan from the Federal Government, a provincial guarantee is not required.

Low Rental Requirements

"Interest centers in minimum rentals, which must be sufficient for all carrying charges, and which, including allowances for management and repairs, maintenance and vacancies, might still amount to but $14 to $15 per month for a $2,400 apartment.

"It might be explained that the low rental is made possible by the low interest rate (1¾ per cent per annum payable half-yearly in the case of a limited-dividend corporation) charged by the Federal Government to be repaid over 35 years, and by the low taxes which the municipality must agree shall not exceed 1 per cent of the cost of construction and by the exemption of the limited-dividend corporation from income tax by the municipality.

"The area in which a housing project is being developed must be adequately planned, and the zoning regulations must be sufficient to secure the investment and the loan during its life. Adequate municipal services must be available or supplied forthwith."

Mr. Seymour ended his broadcast with a vigorous plea for nation-wider systems of taxation and town planning which would extend the principle of tax reduction encouraged by the National Housing Act so as to apply to all buildings.

"The total of all taxes," said Mr. Seymour, "could be greatly reduced by planned development, and as to housing, progressive lowering of the tax rate on all buildings, and increasing the tax rate on land, would decrease the tax burden on all home-owners and on all tenants of low-rent housing projects. Taxation, now the greatest enemy of housing, would become its greatest ally."

Parking Lots: A New City Activity

FIFTY-THREE municipalities in New York State provide parking lots in their business districts, according to a survey made by the New York State Bureau of Municipal Information, and 97 report that they do not provide parking accommodations. Ithaca charges 15 cents per day, 75 cents per week, $3 per month. At New Rochelle, parking is free for 2½ hours to those holding purchase slips, while others are charged 15 to 25 cents. Municipal parking is free in the other 51 communities.

The capacity of the parking areas ranges from 25 cars in Hastings-on-Hudson (7,097 population), 50 cars in Sherburne (1,077 population), Amityville (4,437), Albion (4,878), 60 in Roslyn (1,630), to 500 in Lynbrook (11,993) and Wellsville (5,674), 775 in Garden City (10,000), and 1,000 in Valley Stream (11,790 population).

PRIVATELY OWNED PARKING LOTS IN CENTRAL BUSINESS DISTRICT OF LOS ANGELES

Photograph by courtesy of the Automobile Club of Southern California

Nine of the municipalities provide attendants regularly at the lots; ten provide attendants as needed, as on Saturday night; 33 provide no attendants.

The report points out that the provision of off-street parking lots is a new municipal activity engaged in by cities in at least 16 states, while a number of other cities are planning parking facilities to serve the business district. One of the largest municipal parking areas is in Grant Park, Chicago, on the lake front adjoining the Loop district, accommodating 3,500 cars at 25 cents for 24 hours.

City Managers and Planning Officials Survey

Many cities utilize land which they have owned for years or acquired for other purposes than parking. San Diego has a parking area one mile long by 250 feet wide on the tideland on the edge of the business district. Saginaw, Mich., has converted a former school site, a small riverfront area, and a city market area into parking lots. Baltimore uses an area obtained by condemnation and by demolition of an old market. Schenectady, N. Y., uses land acquired in connection with a street-widening project. Memphis, Tenn., accommodates 3,000 cars in two large areas which the city has owned for over 100 years. Racine, Wis., uses a large filled-in area on the lake front and sites formerly occupied by the city hall and a hay market. Hackensack, N. J., provides space for 700 cars on two lots originally acquired for park purposes. Among other cities using land they have owned for some time, and the number of cars accommodated, are: Asheville, N. C., 240 cars; Bay City, Mich., 500 cars; Waterville, Maine, 90 cars. Jackson, Ill., has provided space for 315 cars on two areas loaned to the city by the county; and Trenton, N. J., has secured the use of state-owned land for a municipal lot accommodating 690 cars.

Another method is the outright purchase or lease of privately owned land for use as parking lots. Winnetka, Ill., provides space for 150 cars on two lots bought at a cost of $18,000. Clintonville, Wis., has bought an area accommodating 1,000 cars; and Flint, Mich., accommodates nearly 350 cars on land bought for $110,000. Quincy, Mass., in 1931 paid $68,000 for an area accommodating 150 cars, and pays rent on a lot which parks 1,500 cars free. Red Bank, N. J., leases six lots at a rental of $3,500 a year, on which 500 cars can be parked free. Other cities leasing land for parking are El Dorado, Kans., 150 cars; Lima, Ohio, 90 cars; Mitchell, S. Dak., 300 cars; Petersburg, Va., 106 cars; and San Mateo, Calif., 250 cars.

A few cities are using land taken over for delinquent taxes, including Brockton, Mass., 500 cars; Lima, Ohio, 90 cars; and Waukesha, Wis.

Has Your Little City a Botanical Garden?

IN JUNE, 1937, the New York newspapers broke a story which maintained first-class position for three days. The hero was Amorphophallus titanum, the third gigantic plant of its species to bloom in captivity. It put the Bronx Botanical Gardens on the map as they had not been before in these 40 years of their existence.

The point is that it is not the size of the botanical garden but its quality that arouses public interest and support.

The Bronx Botanical Gardens have been completely rehabilitated. Owing to the necessity of keeping an eye to the continued existence of the plant life, particular interest attaches to the reconstruction and reinforcement of the steel framework of the glass enclosures and the placing of new Libbey-Owens-Ford glass—clear glass for the desert plants of Texas and South Africa, and frosted glass for the exotic inhabitants of shadowy jungles. The major portion of this work was performed by Lord & Burnham Co., Irvington-on-Hudson, N. Y.

Almost any city of 25,000 population or more can afford a conservatory or botanical garden in connection with its park system. It has been observed that the greenhouses included in many municipally owned cemeteries are a source of great interest to the visitors. Much more so is the well-conceived and developed glass garden in a city park. It is not the quantity of plants or the size of the building which chiefly attracts, but the idea of a tropical or other well-thought-out garden blooming only an eighth of an inch away from winter, that draws citizens into these gentle good-thought-provoking paths. Only $2 per capita will provide a palm house and tropical rooms for growing, a planting room, a boiler, and an increasing volume of pleasure for the town.

Chicago has its Garfield and Washington Park conservatories; Buffalo, its Delaware, South and Humbolt Park conservatories; St. Louis, its Missouri Botanical Gardens; Milwaukee, its Mitchell Park conservatory. But Davenport, Iowa, population 61,000, also has an excellent conservatory; and so has Elmhurst, Ill., population 14,000.

THE CLOISTER GARDEN IN SCHENLEY PARK, PITTSBURGH, PA.

Machine Sweeper and Hand Labor Clean the Streets of Tampa

The Pick-up Unit Works Day and Night and Does Major Portion of Cleaning for This Southern Resort and Industrial City

IN a discussion of street cleaning in Tampa, Fla., J. E. McGlamery, Superintendent of Sanitation, who is responsible for both the street cleaning of this tourist city and the collection and disposal of refuse, stated that the motor pick-up sweeper works two 9-hour shifts and longer if there is not enough "stockade" or prison labor available to do the extra cleaning required. Each night the sweeper cleans the 12 miles of important downtown streets, traveling 24 miles to complete the two gutters, and during the day shift it travels about 26 miles each day cleaning the remaining mileage of paved streets, covering the same route every ten days.

Stockade labor with push brooms cleans the streets that are too rough for effective cleaning with the Elgin sweeper in the outlying districts and where there is no curbing against which the gutter broom of the pick-up sweeper can work. Two regular laborers work throughout the day in the business district with pick-up cans on hand buggies, gathering up paper and other scraps carelessly thrown to the streets and gutters from automobiles and by pedestrians. One of the sanitary inspectors walks through the alleys continuously patrolling to prevent bootlegging scavengers from rifling the garbage and trash containers and leaving refuse spread over the ground. The work of this inspector serves both the street cleaning and the garbage and refuse collection functions of the Sanitary Department.

Solving the Problem of Leaves

To many cities the problem each fall, or in the southern cities later when the frosts come, is the disposal of the leaves which fall in abundance on the streets and collect in the gutters. To prevent the slowing-up of the sweeper by the need for dumping the hopper at frequent intervals, an extra truck is run ahead of the sweeper to collect the heavy fall of leaves and fronds or branches from palm trees, and the regular pick-up truck follows to remove the dumpings from the hopper.

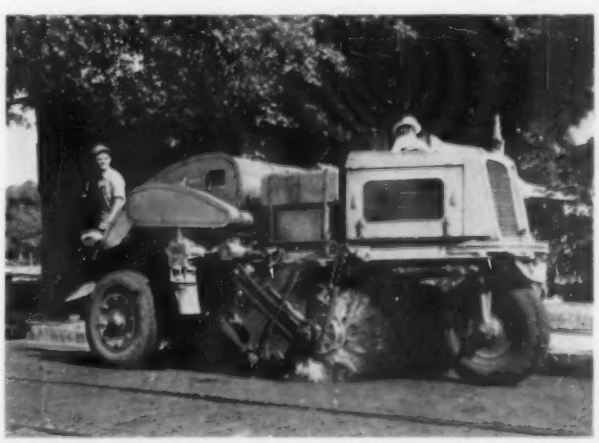
The disposal of leaves has been handled in a novel manner for several years. The Superintendent of Sanitation, in an interview with the City Hall reporter of the local paper, lets it be known that the city will deliver leaves to any properties where they are desired for mulching around shrubs or on lawns. The requests are received in large numbers from all over the city and are listed according to the cleaning routes. As soon as a truck has loaded, the foreman sends it to the nearest property which has requested leaves. There is no charge for this service, since the city has found that the greatly shortened haul for disposal has more than offset the cost of maintaining the lists of property owners wishing the service. In the first three months of 1938 over 2,100 loads of leaves were disposed of in this manner.

Other Services

It is the responsibility of the Sanitary Department to clean, mow and fill vacant lots throughout the city to maintain them in an attractive condition. The Department fills holes in alleys with clean dirt and does the work on the vacant lots with prison labor.

Robels Park, an attractive area of 40 acres in the heart of the city, was an old pond and swampy area that was a breeding place for mosquitoes. The Sanitary Department filled the pond and swamps, and the Park Department has planted and maintained it as an attractive park for the adjacent property owners.

The Sanitary Department is also charged with the removal of discarded and wrecked automobiles left on vacant lots. It operates a wrecker and uses the old chassis and bodies to fill in washed-out places in the banks of the Hillsborough River, which runs through the city. More than 5,000 automobiles have been hauled and dumped on the east bank of the river between the Cass and Lafayette Street bridges. The Atlantic Coast Line Railroad hauled 500 carloads of dirt and dumped in on top of them and made a beautiful park between these two downtown bridges. The Sanitary Department is now putting a fill along the west bank of the river north of the Cass Street bridge in the rear of the new Philips Field stadium, and within a year's time it will be completed and planted. T. R. K.—817.



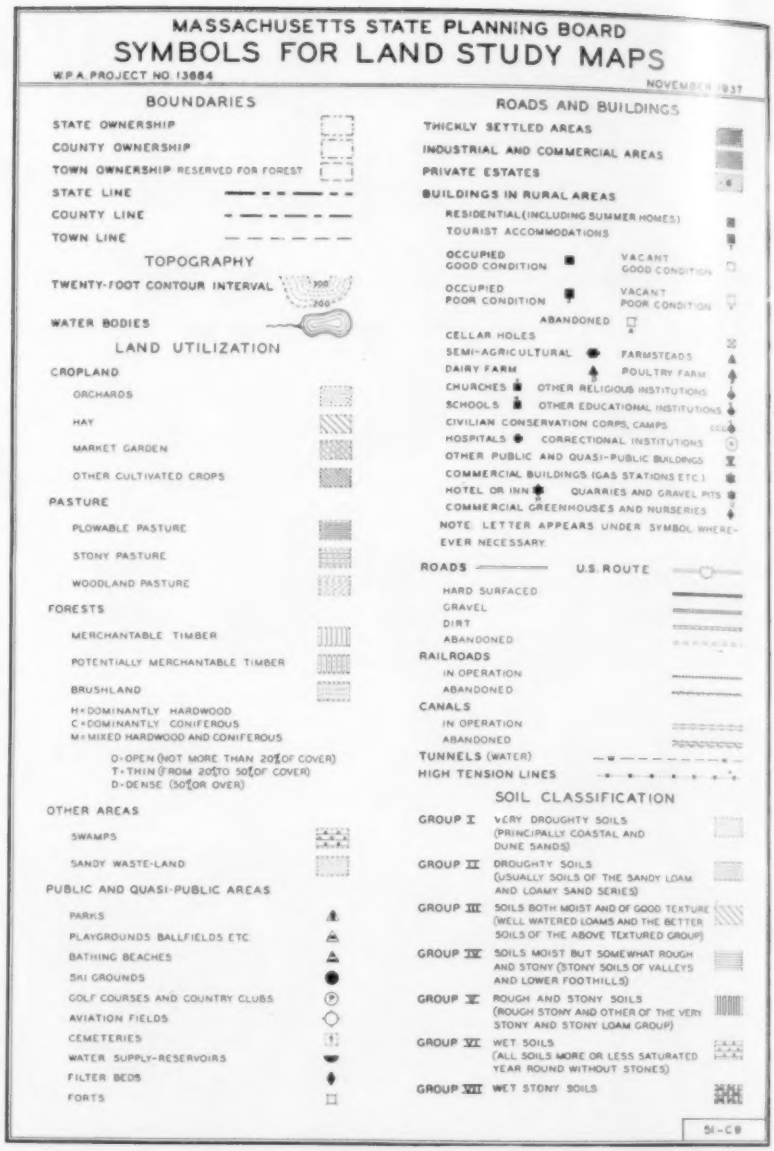
EFFECTIVELY CLEANING A ROUGH PAVEMENT BY A MOTORIZED PICK-UP SWEEPER

Land-Use Maps Have Public and Business Values

WHEN detailed land-resources maps of approximately 300 Massachusetts towns are completed, any citizen will be able to purchase for a negligible sum a complete set of five large-scale maps showing intimate, detailed and hitherto unavailable data concerning land use, land quality, land resources, land contours, roads, waterways, and the nature of all man-made structures and engineering works in all the rural areas in Massachusetts.

More than half the job is already done as a WPA project conducted under the direction of Elisabeth M. Herlihy, Chairman, and Arthur W. Dean, Chief Engineer, of the Massachusetts State Planning Board, with Dr. David I. Rozman as consultant.

For the following discussion of the scope of these maps, and of the uses to which they may be put, THE AMERICAN CITY is indebted to an article published in the October number of *Boston Business*, the magazine of the Boston Chamber of Commerce.



Roads and Buildings Map

This map shows all roads and indicates whether they are hard-surfaced, graded gravel, dirt-roads or abandoned roads. The thickly settled areas of cities and towns, commercial or industrial areas and large private estates are shown by different designs of cross-hatched shading, together with the location of important buildings. High-tension lines are indicated.

Outside the thickly settled areas every building of every type extant in 1936 is indicated in its approximate location with relation to roads. The key-symbols indicate all residences, including summer homes, and show which ones are semi-agricultural.

Among the farmsteads, one may tell at a glance whether one is a dairy farm, a poultry farm, or other type. One may know whether these homes and farms were occupied, vacant or abandoned in 1936-7, whether they were in good or poor condition, and even spot the ones that offer tourist accommodations. A solid black triangle, for instance, indicates a farm. If there is a letter "P" under the triangle, it is a poultry farm. If it were a white outline triangle, it would be a vacant farm in good condition. A dot beneath the triangle would indicate poor condition, while the letter "A" in that position would show that it was classed as an abandoned farm.

And so with all the other buildings in town. Symbols tell at a glance (and quite logically once you get the hang of the modern map-maker's Indian sign language) where the churches, schools and other educational or religious institutions are located; where the other public and quasi-public buildings are; which ones are hospitals, hotels, correctional institutions or commercial buildings, including, as the key says, gas stations.

Road and Waterway Map

This is a far simpler piece of cartography. All the roads are there, but without any indication of their character except where the dotted lines trail off into abandoned aimlessness. All the brooks and ponds come into proper prominence, and there is plenty of white space on which to print the good old New England names that generations of neighborly gossip have handed down to become official now, printed right on the map where the principal brooks and highways flow together down to the railways and the rivers.

Land Utilization Map

Here the whole area of every town is turned into one solid patchwork quilt of different shades and textures, cut and patterned by the town's roads and streams. Spend a few moments on the first page of the key and you'll begin to see the whole town as it is today, and read its past and future. Crop land stands out, everywhere set apart in the whole design from pasture land and forest. But one may tell as quickly which parts of the crop land are orchards and which are hay fields, market gardens or land devoted to other cultivated crops.

If the pasture is plowable pasturage, the lines of shading run one way. If it is stony pasture or woodland pasture, the pattern is different.

Thousands of acres of forest spread a wilderness between the hill roads of those western Massachusetts villages, but one

who scans this map can see at a glance just which acres are merchantable timber, potentially merchantable timber growing in value with the years, or just plain brush land.

Letter symbols reveal whether each of these areas is dominantly hardwoods, dominantly coniferous, or a mixture of the two, and the reader may know at once whether the timber growth is dense (50% coverage or over), thin (20% to 50%) or open woodland with not more than 20% coverage.

For example, if, on an area shaded with vertical and parallel dotted and straight lines, you find the letters "H t," you will know that this is merchantable timber land, dominantly hardwoods, classed as thin growth with the 20-50% coverage.

The Soil Classification Map

Here's a quilt of a totally different pattern. What man and nature have done in millions of years to create the present quality, character and moisture content of the soil is here recorded to be read at a glance. "Droughty" or "Very Droughty"—the well-watered loams of good texture or the moist soils that are more rough and stony—the plain rough and stony or the wet and stony—the wet swamplands without stones, the water bodies and the thickly settled areas—all these are plotted and patterned on the map just as the pre-historic glaciers and industry of man left them, A.D. 1936.

The Topography Map

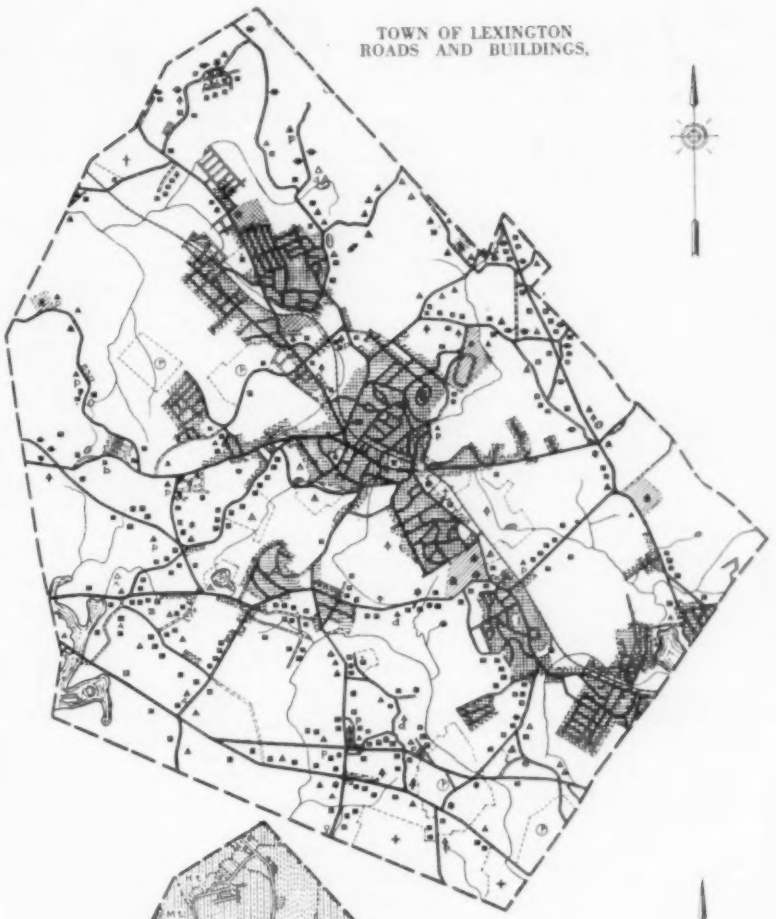
Last but not least comes the familiar land-contour map which shows all the hills and slopes and valleys, graphically revealing the pitch and orientation of every hillside and the elevation above sea-level for every spot in town.

And if that is not enough for even a home mortgage banker to know before sending out a committee to see and appraise a property, these maps will reveal to diligent searchers the location of all public and quasi-public parks, playgrounds, ball fields, bathing beaches, ski grounds, golf courses, country clubs, aviation fields and cemeteries. They show whether a town's borders coincide with county lines or state lines, locate the water-supply reservoirs, indicate land that is under state ownership, or county ownership, or reserved under town ownership for forest.

Sets of these maps for towns already completed may be obtained from the State Planning Board, State House, Boston, for the nominal price of $1.50 per set, including 5 maps and symbol sheet, or 40c per individual map. The maps (five for each town) are 17 x 22 inches in size; scale ½-mile to the inch.

Speeding Completion

In a letter written on November 1 to THE AMERICAN CITY, Melvin L. Morse, Director of Industrial Surveys of the State Planning Board, states that every effort is being made to speed completion of the maps for use in appraising damage from the hurricane of last September.



TOWN OF LEXINGTON
ROADS AND BUILDINGS.

LAND UTILIZATION,
TOWN OF LEXINGTON

Hurricane Damage and Repairs to Bristol, R. I., Water Works

Putting an Indispensable Utility Back to Work

STRIKING with stunning rapidity and displaying such relentless fury as nature alone can muster, on the afternoon of September 21 a combination hurricane-tidal wave humbled the Atlantic coast from New Jersey to Maine. The damage to the Willimantic, Conn., water works was described in THE AMERICAN CITY for November, 1938, pages 51-54. Bearing the brunt of wind and waves, tiny Rhode Island lost hundreds in lives and millions in dollars. Little is known of the actual wind velocity reached at Bristol, R. I., but various observatories in the surrounding territory registered puffs of from 125 miles per hour to more than 185 miles per hour. Together with the streaking wind, there was a succession of tidal waves, some over 40 feet high.

With no more warning than attends a sneeze, the tempest struck the Bristol, R. I., water plant of the American Water Works & Electric Co. at about 5 P.M., Wednesday, September 21. The 50-foot-wide concrete spillway at Kickemuit reservoir, located on the Kickemuit River at about tide head, is equipped with cast iron tide-gates, the dam being exposed to tide action on the lower side. While no accurate measurements could be taken, owing to the quick rise and fall of the tide, it is believed that salt water rushed over the top of the spillway to an elevation of 11 feet. Salt water flooded the electric pump-room at the station and the basement of the steam pump-room to a depth of 4 feet and filled the reservoir constituting the source of supply and containing 40,000,000 gallons of water. The electric pumps were immediately put out of service.

BRISTOL WATER-WORKS PUMPING STATION AND RESERVOIRS MENTIONED IN STORY

Assembling Aid

The first news of the conditions in Bristol was received in New York by telephone about 10 P.M. Owing to the storm, telephone connections throughout southeastern New England were practically paralyzed. As a result, connections between Bristol and New York were so poor that the report was indistinctly heard, but it was known that the plant's service was completely shut down. Shortly after midnight two engineers were en route by rail from New York toward New Haven. No train service was in operation east of New Haven, because of the damage wreaked by the wind and water, so the two engineers engaged a taxi to take them to Bristol, a distance of approximately 130 miles. Blocked roads and snarled traffic caused them to take devious routes, covering the major portion of Connecticut before finally reaching Bristol at 6 o'clock the following evening, after traveling in all about twenty hours. Two hours later two other American officials left New York by auto and owing to improved driving conditions arrived by 8 P.M. Thursday. Prior to the arrival of the four representatives from New York, the Manager and his operating force shut off a large storage tank of pure water, thus saving 500,000 gallons for drinking.

Parceling Out Water

As quickly as possible under the unprecedented conditions, house-to-house delivery was organized by various civic organizations and the company. Water delivery was also carried out by the National Guard, utilizing large sprinkling trucks from the famous Narragansett race-track at Providence. Besides furnishing Bristol citizens with drinking water by truck, the inhabitants of Warren and Barrington, also served by the same plant, were supplied in the same manner.

The American Water Works & Electric Co. plants have met violent acts of nature before with courage—floods, droughts and conflagrations; but never before has one of the plants suffered such a smashing blow with such awesome suddenness. There was no prologue to the hurricane. For this reason the rehabilitation of the plant from its precariously crippled condition in a relatively short time bespeaks determination and spirit on the part of every member of the Bristol County Water Co. organization.

Rehabilitation Proceeds

On Friday, September 23, the electric motors were taken out of the pump station and sent immediately by truck to the General Electric plant at Lynn, where they were dried out. With the electric equipment out of service, the first concern was to start the steam standby equipment. Fresh water was secured for boiler feed purposes by installing two 2-inch lines from the pump station to the Shad Factory reservoir line, about 900 feet above the Kickemuit station. By the time this installation was completed and the boilers fired, the low-lift steam turbines and gears had been dismantled and cleaned of sand and salt water. Pumping was started with the steam equipment on Friday afternoon about 3 o'clock.

Saturday, the 24th, was spent in repairing pipe-line breaks and stopping all possible miscellaneous leaks, so that pressure could be built up in the distribution system. On the following morning it was decided to dilute the water in Kickemuit reservoir, ridding it of salt by allowing water from the Swansea reservoir, farther up the river, to flow into the main reservoir. Previously the blow-off at the Swansea reservoir was opened, but it had not supplied sufficient water. To supplement this plan, a 12-inch syphon was constructed over the Swansea dam.

Electricity Returns

On Sunday evening the electric motors, repaired, were received from Lynn and reinstalled. At the same time electric power was restored. Incidentally, this was the first day since the storm that the home office in New York had been able to communicate with Bristol either by telephone or by telegraph.

A member of the home office Purification Department reached Bristol on Monday morning, September 26, to supervise the treatment of the water. A second 12-inch syphon was constructed over the Swansea dam during the day. By Tuesday it was found that even with the large quantities of fresh water flowing over Kickemuit reservoir from Swansea reservoir the water still remained too salty for drinking.

In order to supply larger quantities of fresh water, the electric-driven pump located at the Shad Factory gatehouse was dried out and started as soon as electric service was restored, pumping water through the 33,000 feet of 18-inch pipe line into Kickemuit reservoir.

One week after the hurricane, on Wednesday, September 28, approximately 900 feet of 18-inch cast iron and tile pipe was laid from the end of the 18-inch Shad Factory line directly into the intake chamber at the main pumping station. The supply from Kickemuit reservoir, which was still too high in salt content to be potable, was blocked off at the intake chamber. Water was pumped through the line by the electric unit at Shad Factory. As a result of this step, potable water was pumped into the mains for the first time in a week.

Little actual damage was inflicted on the machinery by the hurricane, and nothing needed to be replaced. It was mainly a matter of rehabilitating the plant. In the community severe damage was done to property. The houses of a large number of customers were washed away; homes of many other customers were damaged by wind, water and falling trees.

Producing Kwh at Longmont

By F. E. MORGAN
Superintendent, Electrical Department,
Longmont, Colo.

THE Electric Department of the city of Longmont operates a diesel plant of 3,140 hp, or 1,890 kw, and a hydroelectric plant of 800 hp, or 400 kw. The municipality, in Boulder County, has a population of 7,000, and its 1937 municipal expenses, exclusive of those for the Electrical and Water Departments, amounted to $16.15 per capita. The expenses of these two utilities totaled $28.77 per capita; their revenues, $29.71.

The electric plant property is valued at $598,235, with a depreciation reserve of $235,818 against it. Total assets are $410,712, and liabilities $21,995. Net revenue in 1937 was $128,673; operating expenses, $94,313; grand total of disbursements, $124,989.

Residence rates are 8 cents per kwh for the first 30 kwh; 3 cents for the next 30; 2 cents for next 200; and 1 cent for excess over 260 kwh. Water heating is charged at 1 cent per kwh.

Commercial rates are 7 cents per kwh for 100; 4 cents for next 100; 3 cents for more than 200 kwh.

The diesel plant is equipped with four Fairbanks-Morse engines, the most recent, of 1,400 hp, or 840 kw, was installed in January, 1936. Annual production figures for each unit are given below:

Performance Index of Four Diesels

	Horsepower of Unit				
	450	640	640	1,400	Total
Number hours run ..	5,122	3,476	3,626	816	
Kwh output	716,300	798,000	794,500	487,500	2,796,300
Kwh per gal. fuel ...	10.15	11.32	11.01	11.97	11.01
Kwh per gal. lub. oil.	1,186	1,319	1,298	1,642	1,320

Last year's diesel-plant production of 2,796,300 kwh was 6 per cent more than for 1936, and much more than in other years. Since 1931, the kwh per gallon of fuel oil has kept within the range of 10.68 to 11.01; and the corresponding cost was $0.0051 in 1933 to $0.0057 in 1937.

The cost of lubricating oil per kwh has ranged from $0.00028 in 1936 to $0.00083 in 1932, and was $0.00030 in 1937.

Annual cost of engine repairs has varied between $511 and $1,384, and averaged $750.

The diesel plant is valued at $240,438; and depreciation, charged at the rate of 5.68 per cent, averaged $8,330 in 1932-1936, and with the new unit amounted to $13,655 in 1937. The hydroelectric plant, which produced 2,474,300 kwh last year, is valued at $64,019 and has a depreciation rate of 3.08 per cent.

Airport Lighting —Why and How—II

By W. A. PENNOW
Aviation Lighting Engineer, Westinghouse Electric & Mfg. Co., Cleveland, Ohio

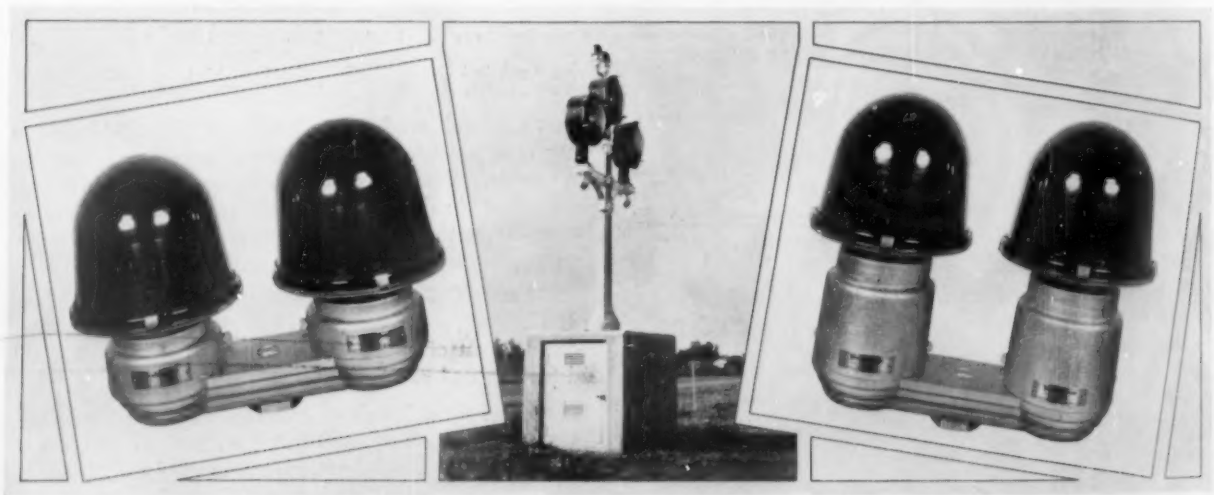
Obstruction Lights

Obstruction lights must mark everything that projects above the normal glide angle from the edge of the landing area nearest it. The present glide angle is stated as a 20 to 1 ratio, allowing 1 foot of additional height for every 20 feet from the boundary line. Thus, a nearby object extending 30 feet above the airport surface must be more than 600 feet from the boundary or be marked with an obstruction light. Obstruction lights should mark all buildings on the airport, as well as other structures such as beacon towers, water tanks and the like, in addition to all adjacent objects within the 20 to 1 limits. Every effort should be made to remove obstructions, in preference to lighting them. The ideal airport is one with no obstructions, and, while this is difficult, the necessary hangars and administration building should be the only major obstructions, and landing area floodlights the only minor obstructions.

Trees adjacent to the airport should be topped or removed. Telephone and electric supply lines forming obstructions should be reinstalled underground or rerouted. Special effort should be made to remove all obstructions in the approach zones as indicated by range lights. An approach zone is an area from 500 to 1,000 feet wide and extending 3,000 to 5,000 feet from the boundary, with its center line on the axis of the runway or landing strip which it serves. Obstructions in these areas have the effect of shortening the runway or landing strip, rendering useless for day or night operations that section between the boundary and the point where the 20 to 1 line over the top of the obstruction intersects the surface of the airport. Fences around airports—and all airports should be effectively fenced—should be placed in such relation to the boundary circuit that the top of the fence is under the 20 to 1 line taken through the center of the boundary light globes. As the proper center of boundary lights is 30 inches above the surface, a 5-foot fence should be 50 feet beyond the boundary lights, a 6-foot fence 70 feet, etc. Many airport plans neglect this point and unintentionally create a hazard that is fully as dangerous as any other major obstruction in the vicinity.

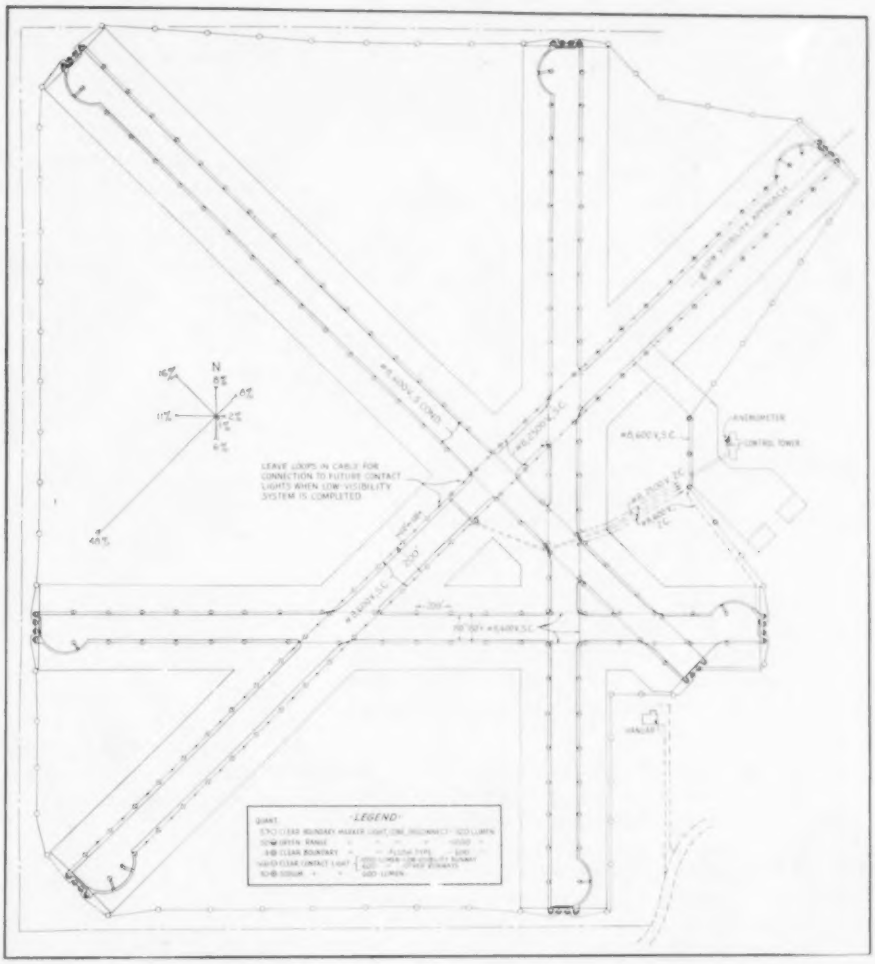
Obstruction-light circuits should be connected into the boundary circuit wherever possible, either directly on multiple systems, or by means of series isolating transformers or series multiple transformers on series systems. Obstruction lights on buildings and structures should be multiple, and the control interlocked with the boundary circuit so that they may be turned on separately or come on automatically with the boundary lights. It should be impossible to have boundary lights on and obstruction lights off. Single or isolated obstructions should be marked with duplex units with both lamps lighted or equipped with transfer relays that bring a spare lamp into operation when the normal lamp fails by breakage or burning out of the filament.

Extended obstructions such as a group of trees, a pole line or a group of buildings should have single units installed at not over 150-foot intervals and have duplex units at each end of the line. Where the obstruction is other than single or isolated, but not an extended obstruction, such as a large tree, a single building or similar structure, the limits must be marked with duplex units in such a manner as to clearly define the outline. Major obstructions such as water tanks, smokestacks, radio towers and the like require special lighting treatment. Complete detailed instructions covering this class of obstruction lighting are contained in Bureau of Air Commerce Bulletin Form 474, copies of which may be obtained from any airline inspector.



TYPICAL OBSTRUCTION AND LANDING-FIELD FLOODLIGHTS

Left—A multiple duplex obstruction light. Right—A series duplex obstruction light. Center—Landing-field floodlights topped by series duplex obstruction lights, all mounted on a granite standard and a concrete transformer house



TYPICAL BOUNDARY, RANGE AND CONTACT LIGHT ARRANGEMENT ON AN AIRPORT HAVING PAVED RUNWAYS. TYPICAL CIRCUIT ARRANGEMENT ALSO SHOWN

Selecting the Correct Cable

Reference has been made to the importance of using proper cable, and the bearing it has on the replacement budget. This has been the most troublesome item on many airports. Engineers should carefully analyze soil conditions to determine precisely the amount and type of soil acids present before considering any type of cable. This is usually guessed at, the assumption being that acid conditions are the same at the airport site as encountered in soil where street-lighting cable is installed in the city. These assumptions are usually 100 per cent wrong, and so lead-covered, steel-taped cable is often found installed where non-metallic should be in use; and in most cases where non-metallic is installed it should have either submarine or superaging rubber as the conductor insulating medium instead of the 30 per cent Hevea rubber found in regular street-lighting cable. Any of the larger cable manufacturers will give proper recommendations for cable if exact soil conditions are available.

There is another important point that merits consideration. Where non-metallic cable is used, underground splice-boxes should also be non-metallic; and where steel-taped cable is used, boxes should also be of metal. Soil acids that attack steel tapes attack metal boxes with equal effect, and early splice failure results. It will usually be found that steel-taped cable should be used in very rocky soil, where soil acids caused by vegetation decay are at a minimum. Steel-taped cable should *always* have superaging rubber for conductor insulation to insure maximum life. Non-metallic cable should be used wherever soil acids are sufficient to cause deterioration of steel tape. It should always be used where any cinder fill has been used in grading. Submarine insulation may be used where soil acids are light. Superaging insulation must be used where heavy acids are present or where cinder fill has been used.

Engineers should strictly avoid "bargain" adhesive tape and splicing compound for underground joints in airport installations. Poor splices will effectively nullify all the effort and expense of other precautions to insure a lasting installation. The quality of splicing materials should be no less than that of the cable, and this quality cannot be purchased at bargain prices. Cable splices should be carefully made in strict accordance with the cable manufacturer's instructions.

Cautioning engineers on these minor points may seem elementary, but these minor things have a habit of causing much trouble and must be constantly watched.

Floodlighting System

Next in importance, and just as necessary for night operations, is the floodlighting system. During the last two years the distributed system has been almost universally adopted. In this system small groups of floodlights of the projector type are located at each end of each runway or landing strip, so that the pilot of the in-

coming or outgoing plane sees the area that he is interested in by direct illumination instead of cross or silhouette lighting. This system provides the same type of lighting as landing lights on the plane, and does not subject the pilot to rapidly changing angles of illumination as the plane progresses.

While the distributed system is not the lowest in initial cost, it is by far the lowest in operation and maintenance expense, as only from 3- to 9-kw demand is required during the period of aircraft movement, compared to from 18 to 75 kw on other systems. Lamp-replacement costs are similarly lower. Each assembly of floodlights in the distributed system may be installed in a single group located off the right side of the runway or landing strip, looking in the direction of aircraft movement, or in two locations, one on either side of the runway or landing strip. Floodlights should be so located and directed that a minimum of adverse reflection from propellers or cockpit windows is encountered. In the case of the single group located off the right side of the runway or landing strip, the fusilage of the aircraft shields that portion of the propeller circle and cockpit windows normally in line of vision of the pilot while landing or taking off. The shadow cast by the aircraft is off to the side and forward, not interfering in any way with clear visibility forward. Some pilots prefer to use this shadow while landing, to determine their proximity to the airport surface.

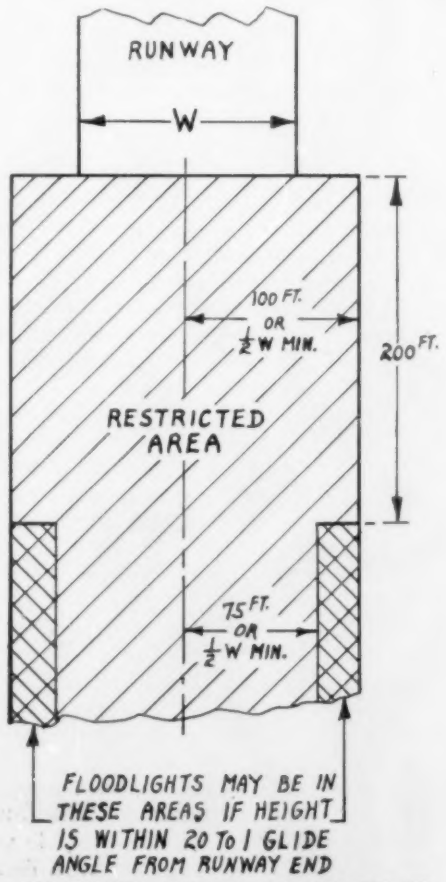
Where two locations are used, the shadow cast by the aircraft from either group is largely washed out by the light from the other group. The effect of adverse reflection caused by the group at the left is somewhat minimized by the additional forward intensity given by the group on the right. Pilot preference for either the single or the double group method is divided, as each method has features that influence personal opinion. Either method gives adequate lighting.

Floodlight groups should be located at least 200 feet beyond the end of the runway or landing strip, and must be at least 100 feet from the center line of the runway, if within 200 feet of the end of the runway, and must be at least 75 feet from the center line and not closer to the center line than the extended edge of the paved area in any case. Where landing strips are used, floodlight groups must be at least 250 feet from the center line as indicated by the range lights. The figure shows where floodlights should be located in relation to the end of a runway.

Floodlight groups should be installed on rigid structures to avoid any vibration or wind sway that will affect the quality of illumination. These floodlights have a very narrow vertical beam divergence, and movement of only a fraction of a degree may cause as much as 5 per cent variation in light intensity on the airport surface. The most practical installation consists of a concrete vault to house the transformer and switching equipment for the group, and a granite standard mounted on the roof of the vault with heavy brackets to support the floodlights. Where the double group method is used, and each group consists of one or two floodlights, a satisfactory installation may be made by using a fabricated steel housing anchored to a concrete base, the floodlights being mounted on steel pipe members attached to the housing. This type of mounting is not advisable where mounting heights of over 10 feet are necessary.

Power supply to floodlight groups should be 2,400 volts, and No. 10 twin-conductor cable may be used if the run is 5,000 feet or less. Runs of over 5,000 feet should be No. 8. If the supply circuit has a grounded neutral, it is good practice to feed more than one position with the same neutral where runs may be advantageously combined. Two positions may be fed with three-conductor cable, or three positions with four-conductor. In these cases single-pole oil breakers may be used at the source to control the various positions, breaking the ungrounded side. On ungrounded neutral supply circuits two-conductors are necessary for each position, and two-pole breakers must be used. Circuits should be so arranged that cables and transformers are energized only during the time the floodlights are lighted, and control should be on the primary supply. Cable should be the same type and grade as discussed for the boundary circuit, and the same care should be exercised in its installation. Transformers for the floodlights should be of standard kva ratings and have four 2½ per cent primary taps below rated voltage so that accurate secondary voltages may be obtained. Transformers should be capable of operation under 25 per cent overload for one hour without excessive temperature rise, and this capacity may be taken advantage of. It is customary to use a 5-kva transformer for loads totaling 6 kw. Similarly, loads of 9 kw may be imposed on a 7½-kva unit, and loads of 12 kw on a 10-kva without hesitation. As floodlights use either 1½-kw or 3-kw lamps, this requirement is essential for initial economy.

Where double groups are used, it is advisable to use a separate transformer for each group rather than attempt to


RUNWAY
W
100 FT. OR ½ W MIN.
200 FT.
RESTRICTED AREA
75 FT. OR ½ W MIN.
FLOODLIGHTS MAY BE IN THESE AREAS IF HEIGHT IS WITHIN 20 TO 1 GLIDE ANGLE FROM RUNWAY END

FLOODLIGHTS MAY NOT BE MOUNTED IN RESTRICTED AREA

carry the high currents encountered at the lamp voltage of 32 from one group to the other. As a voltage drop of 5 per cent reduces the light output about 20 per cent, exceptionally large copper must be used on 32-volt circuits, and its cost is often greater than the difference in price between one transformer large enough to supply both groups, and two smaller ones each supplying a single group.

Each transformer requires one or two expulsion-type fused cut-outs, and each floodlight requires a single- or double-pole 100-ampere fused knife switch, depending on whether the supply has a grounded neutral or not, to provide circuit protection and protection for the maintenance crew. These accessories should be mounted in the transformer vault and be readily accessible.

Floodlight feeders must also have similar fused cut-outs located ahead of the oil circuit breakers.

Group Floodlighting

On airports where terrain is so uneven that the distributed system of floodlighting cannot be used without exceeding safe mounting heights, then the group system must be used. This consists of two or more large groups of floodlights, each of which is capable of lighting the usable area inside the boundary circuit to the required intensity. This method is sometimes modified by splitting a group and using different locations for each position, all supplied by the same feeders and operated by the same control. These modifications are determined by the outline and terrain of the individual airport, and no general rules can be stated. The only governing principles are that no group shall be more than 30 feet above the field level nearest it, nor shall any group be so placed or arranged that light may be directed toward an incoming plane at an angle less than 40 degrees from the axis of the line of flight.

Contact Lighting

Whether floodlighting is to be installed or not, there is a type of lighting for night operations that should be seriously considered for all airports—contact lighting. This is a comparatively new development, brought about by the necessity of continuing night operations under adverse visibility conditions. Originally designed to be used only in conjunction with radio for low visibility, or so-called "blind landings," the first few installations met with such great pilot approval that it is rapidly becoming a necessity on all runways at all airports, regardless of other types of aids.

A few airports have installed contact lighting in preference to floodlighting, and satisfactory pilot reports have been unanimous. It is not a complete system for all weather conditions, and floodlighting still must be considered at airports where night operations are frequent.

There are two types of contact light installations, the first to be used for low-visibility landings, with or without radio aids, and the second for all other night operations. The installation for low-visibility landings may be used only on runways 4,000 feet or over in length. The last 3,000 feet must be outlined with white lights, and the remainder with aviation yellow lights. Thus, on a 5,000-foot-long runway, the first 2,000 feet would be outlined with yellow, and the last 3,000 feet with white. The approach to this runway should be clear for at least two miles and, if possible, should face the prevailing wind. If radio aid is installed, the spacing between lights along the runway should be 100 feet; if no radio aid is installed, the lights should be spaced on 200-foot centers, and a loop provided in the supply cable at the intermediate 100-foot points, so that the additional lights may be installed later when radio aid is provided. Spacing between rows should not be less than 200 feet, and it is suggested that where 200-foot or wider runways are now paved, the lights be mounted at the edge of the paving.

On all runways other than that for low visibility, contact lights should all be white and should be spaced on 200 foot-centers along the runway, with the lights mounted at the edge of the paving, but spacing between rows should not be less than 150 feet.

White contact lights should be equipped with 1,000-lumen lamps on the low-visibility runway, and with 320- or 600-lumen lamps on all other runways. A brightness control unit should be installed on each circuit to permit steps of 40 per cent of normal, normal, and 100 per cent above normal light output for different visibility conditions. The 40 per cent of normal step is used in clear weather, the normal step when there is light haze, light smoke or thin ground fogs, and the 100 per cent above normal for use under all other conditions of low visibility, including falling snow or heavy rain. As contact lights are very efficient light producers in the zone between zero and 15 degrees above horizontal, they become glaring in clear weather if operated at normal brightness, and in extreme low-visibility conditions the additional brightness is helpful.

The aviation yellow contact lights should be equipped with 6,000-lumen sodium vapor lamps, these being the most efficient producers of this characteristic color available, about 40 lumens per watt input compared to about 10 lumens per watt input on an incandescent lamp with a color screen. The light from the sodium lamp has the added advantages of being practically glare-free in clear weather and halo-free under low-visibility conditions, owing to its monochromatic composition, therefore giving much better results than any other possible combination and not requiring brightness control.

The contact light system should be series, and the cable size should be No. 8 in all cases. It is advisable to use 2,500-volt cable on the low-visibility runway, and 1,000-volt cable on all others, except in cases where adverse property holdings definitely limit a runway to 3,000 feet or less, when 600-volt cable may be used.

By the use of relays, it is possible to use only one constant-current regulator for all runways except that for low visibility. The relays should be single-pole, normally closed, and arranged so that each relay short-circuits the loop feeding a runway. By the use of a rotary contact switch, only one relay may be opened at a time, lighting that particular runway. The low-visibility runway should be on a separate regulator and should have a divided circuit so that either the yellow only, or both yellow and white, may be turned on. In the case of an unusually long runway, it may be desirable to use a separate regulator for the yellow only and include the white portion on the regulator that feeds the other runways, as another unit in the relay and rotary switch system to provide additional flexibility as well as decreased cable cost. The comments on cable as applied to the boundary circuit are doubly im-

portant on contact lighting systems, and cable voltage should be determined only by a careful study of all probable expansions of the system to determine the maximum ultimate load.

Other Features

In addition to the three major items of lighting so far discussed, there are several miscellaneous items that are required as the extent of the installation progresses. An illuminated wind cone should be installed with the boundary light system. A ceiling projector and alidade for determining ceiling height at night should also be installed at that time. When either floodlights or contact lights, or both, are installed, an illuminated wind tee and loading area or apron floodlights should be added to the lighting system.

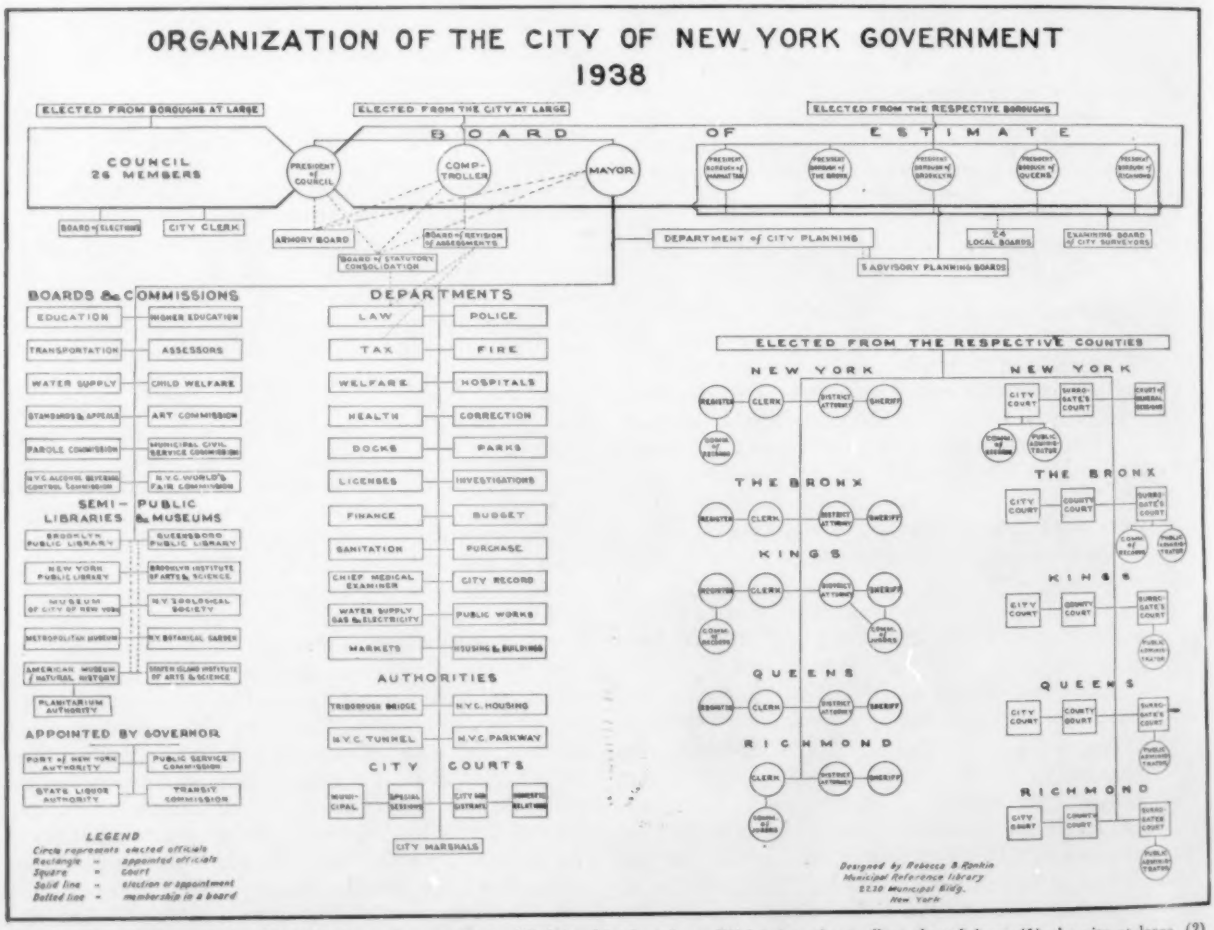
All airports contemplating night operations should consider a control panel, or control desk, for the control tower. It is essential that all switching be concentrated at one point on the airport, and the most logical place is the control room. A control panel is usually sufficient at all except terminal airports, and the panel should include complete switching, a miniature plan of the field, and instruments showing wind velocity and direction. At terminal airports a control desk is necessary, and should include, in addition to the equipment listed for the panel, instruments for showing wind tee position, barometric pressure, outside temperature and time; and space for microphones, telephones, log-books and files should also be provided to give the control officer every necessary aid at his fingertips at all times.

There are standard approved types of equipment available for every type of lighting aid to night aircraft operation, and impartial specifications on any or all of these types may be secured from any civil aeronautics authority field inspector.

Organization of New York City Government

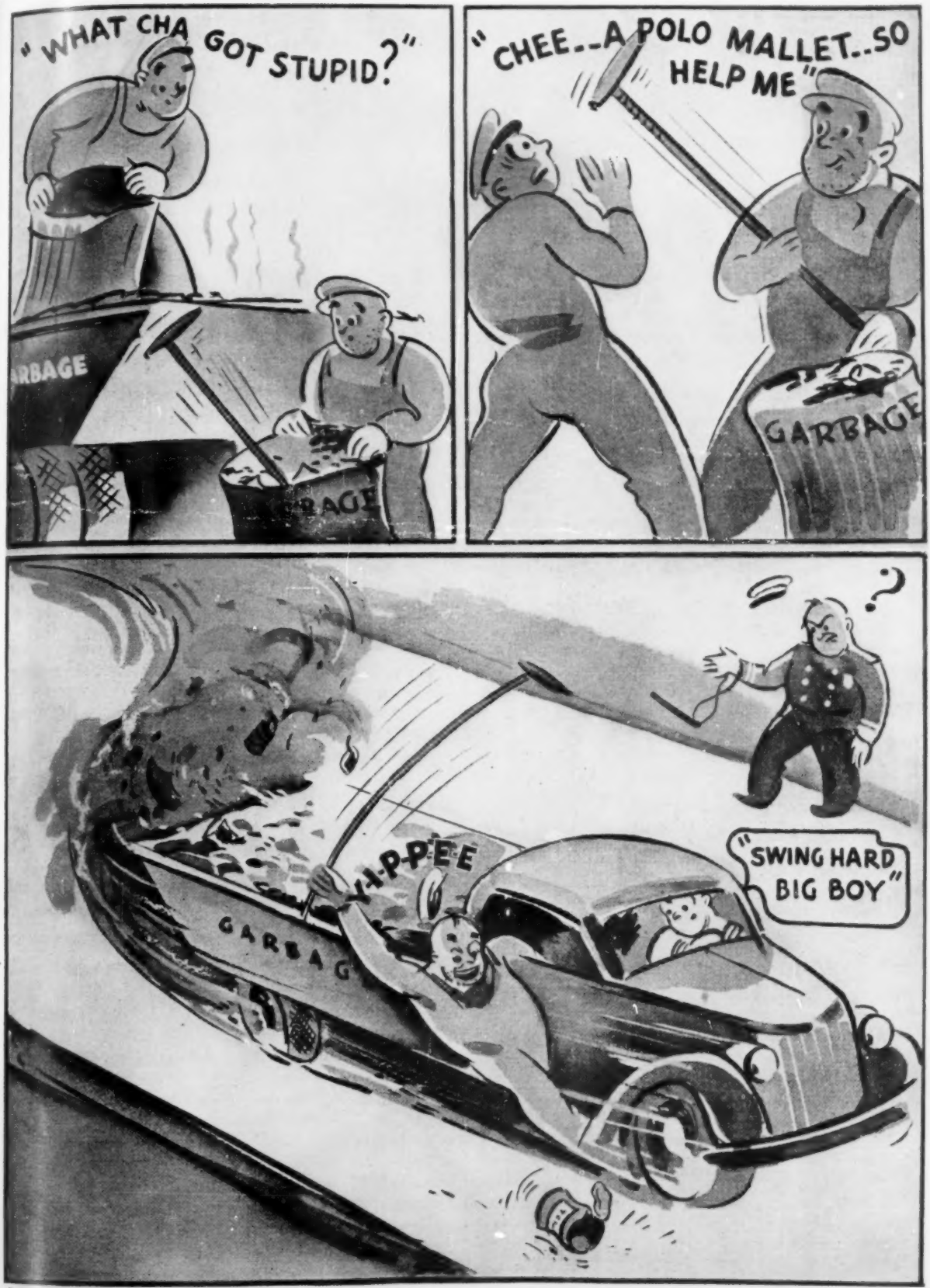
THE New York Municipal Reference Library has published the chart below, showing the present organization of the New York City government as changed by the new city charter effective January 1, 1938.

"City administration is centered in the office of the Mayor: heads of administrative departments, boards and commissions, and judges in city courts are appointed by and responsible to him. The Comptroller is the chief financial officer and adviser of the Board of Estimate. The President of the Council, presiding officer of that body, serves also in the Board of Estimate and has equal power therein with the Mayor and Comptroller. Each Borough President has administrative powers in his borough as well as a weighted vote in the Board of Estimate where, together, they have a vote of 7 out of 16."



The complicated set-up of New York City's government is simplified in this chart by a division into those offices elected from (1) the city at large, (2) the boroughs at large, (3) the respective boroughs, (4) the respective counties. Secondly, subdivision has been made by (1) departments, (2) boards and commissions, (3) authorities, (4) courts, (5) semi-public institutions, (6) those appointed by the Governor

The Swing to Polo



Cartoon by courtesy of General Tire and Rubber Co.

Highway Widening Procedure Saves Millions

By RAY E. BEHRENS

PLANNING organizations, while promoting the social and economic welfare of the areas in which they operate, have been unable, except in rather rare instances, to point to specific results of a planned program which indicate to the community just what the activity has been worth in tax dollars.

One of the early efforts of the Milwaukee County Regional Planning Department was directed toward the establishment of a system of major highways of ample widths for traffic requirements. Experiences with landowners and real estate subdividers revealed a willingness to comply with certain definite widths of highways in excess of those then existing, provided these subdividers could be assured that adjoining owners would do likewise. This situation prompted the Department to seek state enabling legislation granting to the county the authority to establish highway widths.

In 1926 the Milwaukee County Board of Supervisors enacted an ordinance known as the Highway Widening Ordinance. This ordinance was concurred in by the respective town governments. In it a declaration of intention was made on the part of the County Board to widen at some future date, to the width specified, the highways enumerated in the ordinance. The County Clerk was instructed by the ordinance to record the provisions of the ordinance in the office of the Register of Deeds. Thus the abstract of title to each parcel of land fronting on a highway affected by the ordinance gave notice to those interested that a new width of highway had been established. The ordinance became effective at a time when platting activity was high, and resulted in the dedication of highways to the county as tabulated below:

TABLE 1—DEDICATIONS ON MAJOR HIGHWAYS
1926 TO 1937 INCLUSIVE

Established Width of Highway	Miles Dedicated
90 feet	17.63
100 "	6.79
110 "	8.27
120 "	17.47
160 "	1.89
Total	52.05

Subsequent to the passage of the Highway Widening Ordinance, the county determined that because of physical improvements contemplated on certain highways, the full width of right-of-way was necessary before construction could proceed. Obviously, all the lands along any one highway had not all been platted. Some lands remained as acreage, and other lands were platted before the adoption of the widening ordinance. Consequently, on those highways which were to be improved and on which it was desirable to acquire the right-of-way to the established widths, it was necessary to compensate the owners of lands where dedications to the established width had not yet been made or where portions of lots were taken which had been platted prior to the enactment of the ordinance. Following are data showing the costs per mile to the county for the acquisition of lands along highways to certain widths, being the width established under the ordinance of 1926. These costs include damages resulting from the moving of buildings, fences, destruction of trees, wells, and other appurtenances.

TABLE 2—DAMAGES PAID FOR HIGHWAY WIDENING ACQUISITION

Highway	Width in Feet	Length of Highway Acquired in Miles	Total Cost	Average Cost Per Mile
Capitol Drive	120	3.52	$89,244	$25,339
Blue Mound Road	120	2.16	81,742	37,843
Kilbourn Road ..	160	9.40	367,292	39,094
Grange Avenue ..	110	1.50	11,894	7,945
Oklahoma Avenue	120	4.36	68,098	15,619
Howell Avenue ...	120	1.00	116,856	116,856
Lover's Lane	120	4.41	46,467	10,537

The above tabulation shows that five highways were widened to a width of 120 feet at costs ranging from $10,537 to $116,856 per mile. To obtain a figure which would represent a weighted average, we find that 15.45 miles of highway (120 feet wide) were acquired, with total damages amounting to $402,407, giving an average of $26,042 per mile.

For computation purposes we may conservatively assume that a highway acquired to a width of 100 feet would cost 5/6 of $26,042 or $21,702 per mile; and one widened to 90 feet would cost ¾ of $26,042, or $19,532 per mile.

Using the figures obtained above and those given in two tabulations, we can evaluate the results of highway dedications in terms of actual damages paid by the county on other highways.

TABLE 3—VALUE OF DEDICATED HIGHWAYS

Width of Highway in Feet	Length in Miles	Average Value Per Mile	Total
90	17.63	$19,532	$344,248
100	6.79	21,702	147,356
110	8.27	7,945	65,669
120	17.47	26,042	455,091
160	1.89	39,094	73,693
GRAND TOTAL			$1,086,057

This grand total of over one million dollars represents an actual saving of this amount to the taxpayers of the county in future widening costs.

It is possible to obtain another estimate of the value of the Highway Widening Ordinance from an entirely different angle. Since the month of August, 1928, Milwaukee County has been issuing building permits beyond the limits of cities and villages to enforce the county zoning ordinance. Permits are not granted for construction on highways and their extensions the widths of which have been established by ordinance unless the structures conform with the setbacks required by the ordinance. Business structures are permitted to build to the line of the established width, and residences are required to set back a distance of 25 feet or more from this line.

Tabulating the building values stated in the permit applications for structures erected on the major highways in the county, we get the following results:

TABLE 4—STATED VALUE OF STRUCTURES SET BACK OF LINES OF ESTABLISHED WIDTHS ON MAJOR HIGHWAYS 1928 TO 1937 INCLUSIVE

Township	Value of Construction
Granville	$1,074,475
Milwaukee	498,858
Wauwatosa	570,349
Greenfield	1,793,165
Lake	952,595
	$4,889,442

Inasmuch as the values stated in the permit are generally considerably lower than the actual costs of construction, it may be safely estimated that new structures in excess of $5,000,000 have been set back to provide for the future widening of highways. It is realized that had these buildings not been set back and if subsequent highway widening required their moving to new lines, the damages would not equal the figures given. Experience has shown, however, that when a structure must be moved the damages are always quite substantial.

A conservative estimate based on the figures obtained from Tables 3 and 4 would probably place the actual value of the highway-widening phase of planning activity at between three and five millions of dollars. The efforts of the Planning Department in this activity are quite generally recognized and appreciated as a worth-while and remunerative enterprise.

The Milwaukee County Regional Planning Department is headed by W. F. Cavanaugh as Highway Commissioner and Planning Engineer; E. A. Howard is Supervising Engineer; and the writer is Senior Assistant Civil Engineer.

Parking Meters: "Best Solution Yet Found"

IN RESPONSE to inquiries from members of the National Association of Building Owners and Managers, steps were taken to get the facts about parking meters, says a report by that organization, covering answers to the resulting questionnaire.

In selecting the cities, the Association was guided by established contacts—member contacts preferably—on which it could rely. The 21 cities whose experience with the parking meter are covered in this survey are: Long Beach, Calif.; Wilmington, Del.; Anderson, Ind.; Topeka, Kans.; Kansas City, Mo.; Omaha, Nebr., Paterson, N. J.; Oklahoma City, Okla.; Portland, Ore.; Oil City, Pa.; Knoxville, Tenn.; Abilene, Austin, Dallas, El Paso, Fort Worth, Houston, Lubbock, San Antonio, Texas; Norfolk, Va.

The returns are in substantial agreement that: (1) parking meters are definitely helping to solve parking and traffic problems; (2) traffic moves more rapidly and more parking space is available; and (3) adverse opinions which may have existed before installation have been generally overcome, and the use of meters is now regarded favorably by merchants and citizens and, in most cases, by visiting motorists as well. It appears, too, that parking meters offer a welcome—though incidental—source of revenue. The showing is significant, and here are some of the questions and answers:

How many meters do you have in operation?

Nine cities have 500 meters or fewer.
Six cities have between 501 and 1,000 meters.
Five cities have between 1,001 and 1,500 meters.
One city has between 2,001 and 2,500 meters.

The average works out consistently: cities from 25,000 to 100,000 in population average 357 parking meters; from 100,001 to 200,000, average 625 meters; from 200,001 to 300,000, average 1,003 meters; and from 300,001 to 400,000, average 1,486 meters in use.

The introduction of parking meters was not accomplished in all cases without initial opposition. At times both merchants and motorists had their doubts, though opinion varied considerably. That these doubts were satisfactorily resolved seems quite clear from the answers next recorded:

After installation, did that attitude change?

Fifteen say "yes" (from unfavorable to favorable).
Two report that "complaints died out."
In one city (Lubbock, Texas) the meters were removed, but later replaced.
Says one: "All favorable except garages and parking lots."
Two were non-committal.

The public authorities are now generally "sold" on parking meters. There was no dissenting voice. The general result, in the experience of these cities, has been that parking meters expedite the traffic movement.

Apparently, no serious problem is presented in regard to supervision.

Visiting motorists have been won over, being more interested in a place to park than irritated by the necessity of placing a nickel in the slot.

But there have been legal questions raised. In about one-third of the places reporting, the question of the right to charge for parking space in the street has found its way into court.

Has any question been raised as to their legality?

Fourteen—No.
Seven—Yes.

In the seven litigated cases, the outcome has been favorable and the legal status of the parking meter affirmed. One instance is cited where tribunals split. Even there it would appear that the court of higher jurisdiction found in favor of the use of parking meters.

If so, how settled?

Three—Found legal.
One—For police protection, rather than for revenue.
One—(a) Conviction of citizen for not placing coin, reversed in County Court, which held parking-meter ordinance invalid. (b) Suit against city officials for enforcement of meter ordinance, State District Court held valid.
One—"Our Supreme Court held valid as used."
One—Texas Supreme Court upheld as legal.

That the effect on garages and public parking lots is not harmful, but may even be helpful, is indicated by these replies:

Is garage or parking-lot business hurt?

Fifteen—"No."
Three—"Apparently not."
One—"Not noticeably."
One—"Yes."
One—Doesn't say.

The answer "Yes" was amplified by the statement: "Yes, in downtown locations; no, in others. Parking lots more than garages."

Supplemental expressions by those answering "No": "Several additional downtown lots opened and operating successfully." . . . "Only a few here, and they have always been poorly patronized." . . . "Helped, as it drives long-time parkers to lots and garages." (Three make this statement.) . . . "Some have increased their prices." . . . "Actually helped; several new ones installed." . . . "Show increase in dollar revenue with less car turn-over."

Must a City Pay State Sales Taxes?

By LAWRENCE R. BLOOMENTHAL
Attorney; Tax Consultant, Allen & Company, Des Moines, Iowa

TAXATION of sales has been adopted as a convenient means of raising additional revenue for meeting the cost of relief and old-age assistance. At the present time, 21 states levy a "sales tax," "gross receipts" or "gross income" tax of 2 per cent or 3 per cent on every dollar of receipts from sales. Two other states levy a 1 per cent tax, and Pennsylvania collects 1 mill on the dollar.

The cities in 14 of the 24 states in which such levies are in force are compelled to pay sales taxes on their purchases of supplies and equipment. The theory on which these states base their demands is that the tax is on the privilege of selling and not on the merchandise itself. In other words, they feel that the retailer is being taxed and must obtain reimbursement from his customer; the identity of the customer is of no importance.

For example, the engines, hose and other apparatus of fire departments may be exempted from property taxes because they are public property used for public purposes. Yet, in these fourteen states, if a thousand feet of hose is sold the fire department, a retail sales tax is added to the selling price, so that the city really is paying a tax based on the value of the property it is acquiring. The main difference between sales and the usual property tax is that the former is paid only once at the time of purchase, while a regular property tax is assessed annually. Public officials have opposed the payment by cities of sales taxes, claiming that it reduces their purchasing power and forces them to increase the tax burden already borne by the community.

The other ten sales tax states provide expressly in their laws that sales to the state, county or municipal governments shall be exempt. It is their belief that requiring the collection of sales tax from a governmental body is contrary to the constitutional exemption of public property and is of no real benefit to the state.

Ten states exempt various food products from their state sales tax laws. California, New Mexico and Mississippi broadly include in this category farm products. Arkansas specifies that the "first sale of farm products" is not taxed, and Alabama exempts farm products and certain staple foods. The state of Washington designates the exemptions, listing them as "bread, milk, butter and vegetables."

In two states, Ohio and Oklahoma, not only is food exempt, but the sales of food to students in school cafeterias must not be taxed. Louisiana frees from tax "farm products sold to consumer and to manufacturers for processing or manufacturing," and North Carolina exempts "products of farms, waters and fresh milk when sold by producers or fishermen."

Although Kentucky and Texas have no general sales taxes, they do impose a tax on admissions to theaters, dance halls, swimming pools and other public places of amusement. However, in Kentucky, admissions to public bathing places owned by municipalities are not subject to this tax, while Texas has a somewhat broader exemption. School books and sales to schools are exempt in Mississippi and Alabama.

The Attorney General of the state of Washington has ruled that governmental departments of cities, including the police, water works and parks, need not pay a sales tax on their purchases, but that the proprietary departments, such as a power plant operated for profit, are not exempt. Mississippi provides that sales of gas, water and electricity for domestic, commercial and industrial uses are taxable, but this law has been interpreted to exempt municipalities which subscribe for such services from privately owned utilities.

When local merchants sell tools, food or materials to PWA, CCC or other relief agencies financed and operated directly by the Federal Government, no state sales tax whatsoever can be collected. But if the PWA should loan money to a city or give it an outright grant for the purpose of meeting all or a part of the cost of building a sewerage system, detention home, bridge or other public works, the money then loses its identity as Federal funds and becomes part of the city's general assets. Therefore, purchases made directly from these funds are subject to state sales taxes unless cities are specifically exempted.

After sales tax laws had been in effect for several years, it was found that many consumers, including cities, were purchasing merchandise of all kinds from firms in other states, which they found difficult to obtain elsewhere. This practice deprived their home states of tax, because these transactions were considered a part of interstate commerce, with which no state tax could interfere. To overcome this loss of revenue, most of the 24 sales tax states levy "use" or compensating taxes.

Use taxes supplement the ordinary sales tax, so that the combination now covers sales within and without the state. The principle behind this latest development is that a state has the right to tax its inhabitants for the privilege of bringing in supplies and equipment for use and consumption within its borders. Generally, the same rate is applied to both types of taxes, so that the consumer can no longer benefit materially by out-of-state purchases.

States Having No General Sales Tax
Connecticut (1)
Delaware (2)
Dist. of Columbia (3)
Florida
Georgia
Idaho
Kentucky (4)
Maine
Maryland
Massachusetts
Minnesota
Montana
Nebraska
Nevada
New Hampshire
New Jersey
New York (5)
Oregon
Rhode Island (6)
South Carolina (7)
Tennessee
Texas (8)
Vermont
Virginia (9)
Wisconsin

States Levying Gross Receipts, Gross Income or Retail Sales Tax

Cities Exempt	Cities Pay Tax
Colorado	Alabama 2%
Kansas	Arizona 2%
New Mexico	Arkansas 2%
North Carolina	California 3%
Ohio	Illinois 3%
South Dakota	Indiana 1%
Utah	Iowa 2%
Washington*	Louisiana 1%
West Virginia	Michigan 3%
Wyoming	Mississippi 2%
* Washington tax borne by business as operating overhead, not passed on to consumers.	Missouri 2%
	North Dakota 2%
	Oklahoma 2%
	Pennsylvania ..... Mercantile license tax 1 mill per $1 gross business.

(1) Connecticut.—Unincorporated business gross income tax—1 mill. Wholesale mercantile tax—25c per $1,000 of gross income, $5 minimum fee to all taxpayers.

(2) Delaware.—Merchants license tax: with certain exceptions, all merchants pay $5 plus 1/10 of 1% of aggregate cost value of commodities purchased during past year.

(3) Dist. of Columbia.—Business privilege tax: measured by gross receipts; certain utilities and banks paying gross income tax are exempt.

(4) Kentucky.—Admissions tax: admissions to municipally owned bathing beaches are exempt.

(5) New York.—New York City has gross receipts tax, expiring June 30, 1939—all business with receipts of $10,000 or over, except financial business, pay 1/10 of 1%. Also, New York City has retail sales tax—sales to N. Y. C., to semi-public institutions and those exempted by state or Federal constitutions are exempt. Special exemptions for World's Fair construction.

(6) Rhode Island.—Cities authorized to levy excise tax on admissions, meals and public services, but no such taxes appear to have been levied.

(7) So. Carolina.—Admissions tax: exemption for high or grammar school games and state or local fairs.

(8) Texas.—Admissions tax: exemption for admissions which benefit state, religious, educational or charitable institutions.

(9) Virginia.—Merchants license tax: payable to city or county. Retailers pay flat license fee plus 13c for every $100 over $2,000 gross sales. Wholesalers pay flat fee plus 13c on every $100 over $10,000 gross purchases.

Forward Steps

Reported by Municipal Officials, Chamber of Commerce Executives, and Others

Dallas Likes Its New Street-Name Signs

DALLAS, TEXAS.—"We looked from our office window today and a saw a pair of fine new street signs at the intersection. We did not have even to go into the street to read them. We know now where we live—Federal and Bullington. Having argued long and earnestly for better marking of Dallas streets, it is most satisfying to see the work progressing."

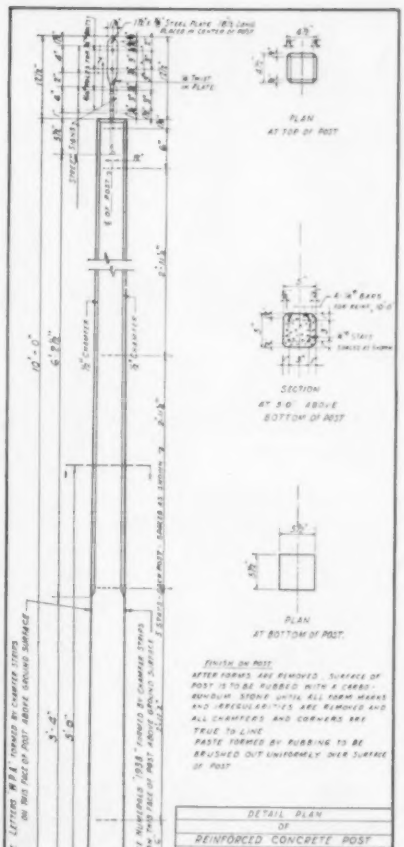
Thus the *Dispatch-Journal* commented, in an editorial entitled "You Can Find Us Now." We have erected 2,500 markers with 1,500 more to go in, and have submitted a supplemental application which has been approved by the Works Progress Administration for 6,000 additional units, making a total of 10,000 to mark every intersection in the city.

The accompanying illustrations show the appearance and construction of these units, which our Director of Public Works, A. P. Rollins, describes as follows:

Two posts are placed at each intersection, and four signs are placed on each post—two signs of the same street are put back to back and bolted to a bracket on top of the post. The street block numbers are stenciled in black on the four sides of the posts 6 inches below the top.

The 10-foot reinforced-concrete posts were constructed locally by WPA labor. They taper from 5½ x 5½ inches at the base to 4½ x 4½ at top. There is a ¾-inch chamfer 6 feet long on each corner. Reinforcement consists of four ½-inch pieces of steel assembled with four ties, made as a steel core to a concrete column.

The porcelain-enameled signs, made by Texlite, Inc., Dallas, are mounted on hand-fabricated steel brackets cast into the concrete posts. The signs are 24 x 5 inches with 3-inch letters on a dark-blue background. Longer street names may require signs up to 32 inches in length.



STREET NAME SIGNS, DALLAS, TEXAS

The contrast between the light-colored concrete post and the dark-blue background of the sign makes these units easily observed and distinguishes them from other traffic signs and utility posts at an intersection.

In addition to the street signs, we have an approval from the WPA on the erection of 600 posts of a similar type for mounting boulevard STOP signs.

Gus W. Thomasson, Administrative Officer of the WPA, and his entire organization have cooperated to the fullest extent in this project, which is proving of great benefit to our entire citizenship, in increased convenience and safety.

HAL MOSELEY,
City Manager.

"Know the Truth—About Venereal Diseases—Save the Youth"

FORT WAYNE, IND.—When Mayor Harry W. Baals, in cooperation with Dr. Karl C. Eberly, City Health Commissioner, called together a number of prominent citizens in April, 1937, for the purpose of discussing ways and means of cooperating with the Fort Wayne Board of Public Health in its fight against syphilis and gonorrhea, there was launched a unique program of public education—a program that has attracted much favorable attention in other parts of the country.

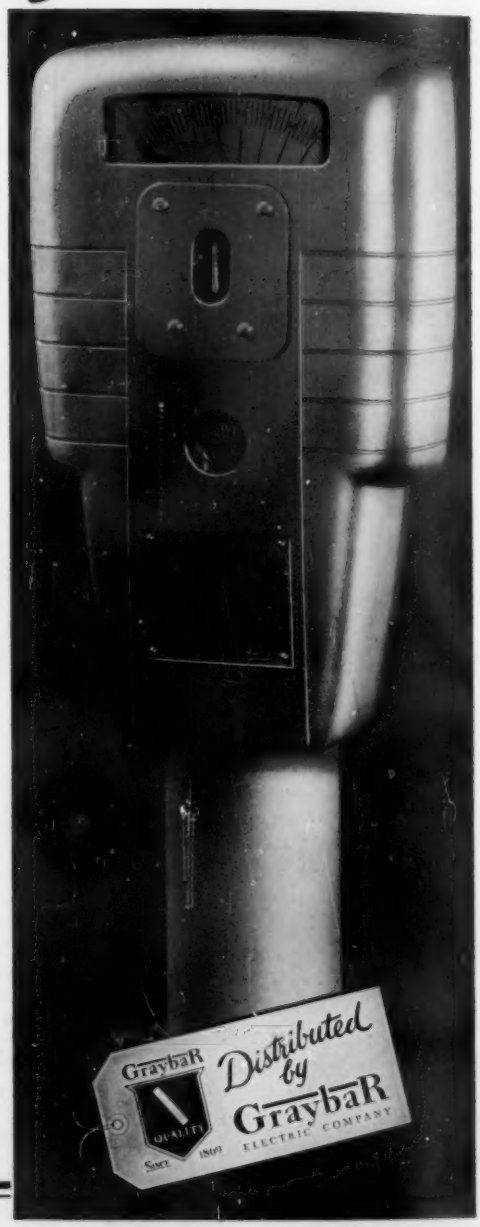
An organization known as "The League Against Venereal Diseases" was formed for the primary purpose of educating the public so that those infected might freely seek treatment and that the infection of others might be prevented. Dr. Eberly pointed out that the subject was one of compelling and vital interest to parents whose proper concern it was that their sons and daughters marry mates free of these diseases. It was with this objective in mind that the League's slogan "Know The Truth—Save The Youth" was adopted. The need for such an organization was further emphasized by the Board of Health's estimate that approximately 6,000 persons in the city were infected with syphilis, and that nearly 1,000 treatments were administered at the Board of Health's Venereal Clinic each month.

Fortunately, financing of the first year's work, because of the efficiently planned program, required the raising of less than $5,000 through subscriptions made by employers and others having a high sense of duty to the less fortunate. In this way it was possible to concentrate intense effort on a major community health problem in cooperation with the national program of the National Hygiene Association and the U. S. Public Health Service.

From the original nucleus of 250 citizens who joined to form the League and selected its officers, the membership has grown to more than 10,000. This membership was obtained principally through four public mass meetings ably directed by Dr. Eberly,—meetings, incidentally, which only the 2,000-seat Shrine Auditorium would hold,—numerous smaller meetings, direct mail and other publicity (local newspapers, radio and the *Municipal Review*).

The fine cooperation of both local newspapers resulted in over 2,100 column inches of newspaper space, equivalent to 13 full pages, devoted to the activities of the League and to an educational campaign in the fight against venereal

THE "THOROUGHBRED" *Wins Again!*



THE ACID TEST—Four months ago 100 Karpark Automatic Meters were installed on the streets of Roanoke, Virginia, in a competitive test.

THE FINAL RESULT— On November 16th, 1938, Roanoke, Va. awarded the Graybar Electric Co. the installation of KARPARK AUTOMATIC METERS for the balance of its parking meter requirements. The "thoroughbred" meter wins again!

Within the last two months we have seen Washington, the nation's capital, and now, Roanoke, Va. award contracts to Karpark Automatic Meters after rigorous and thorough tests. These awards are the result of the inherent mechanical superiority and dependability of KARPARK! They represent intelligent purchasing by alert city officials.

● GRAYBAR ELECTRIC CO., who for 70 years has distributed high-grade products, guarantees KARPARK METERS and distributes them from 83 cities in the United States.

★ **Write or telephone your nearest GRAYBAR Distributor for a detailed explanation of what KARPARK will do for your city . . . DO IT TODAY!**

THE KARPARK CORPORATION

420 LEXINGTON AVENUE NEW YORK, N. Y.

TYPICAL MASS MEETING HELD BY FORT WAYNE LEAGUE AGAINST VENEREAL DISEASES

diseases. Several forceful cartoons endorsing the League's work were also published.

The local radio stations were also cooperative and speakers selected from the medical, educational, civic and business fields have given talks over the air.

Six hundred and fifty display cards attractively printed in several colors, illustrated and carrying dynamic messages on various phases of the campaign, were distributed throughout the business houses and industries of the city. Posters urging health examination before marriage are prominently displayed in the office of the County Clerk in the Court-House, where marriage applicants apply for the licenses. Similar posters are also displayed in the offices of the Justices of the Peace. Twenty-four full-size billboard posters purchased by the League were also displayed on billboards throughout the city. Individual membership cards, which in themselves contain much educational information, were filled out and sent to each of the 10,000 members along with a letter. Some newspaper display advertising has also been used. No membership dues are required.

A large mass of educational literature, including approximately 41,000 pieces, distributed both by mail and through the public mass meetings, bore the brunt of the campaign of enlightenment.

Although the League is only a little more than a year old, it already has produced tangible results in the form of greatly increased demand for tests on the part of expectant mothers and others as a part of their regular physical examination; and in rapid growth in membership and sustained interest in the League's program of education.

The outstanding success of Fort Wayne's League Against Venereal Diseases is attributable not only to sustained enthusiasm on the part of the League's directors, but also to the community-wide cooperation and competent leadership which attended its functioning. In every instance, except those of indigent patients who went to the free Venereal Clinic in the City Hall, all cases were referred to the family physician. The cooperation of the physicians was a vital factor in the success of the effort. Nurses, druggists, dentists and many civic organizations have endorsed the League and are active in the promotion of its educational campaign.

The officers and executive committee, under whose guidance the League's splendid work has attracted comment nationally in several metropolitan newspapers as well as in widely-circulated health journals, are: A. G. Burry, President; R. Nelson Snider, Vice-President; Harry E. Lowery, Treasurer, and Clem J. Steigmeyer, Secretary; the Executive Committee, in addition to the officers named above, are: Mayor Harry W. Baals, Dr. Karl C. Eberly, E. J. Gallmeyer, Arthur F. Hall, Harry G. Hogan, Donnelly P. McDonald, Robert M. Pollak and Frank E. Bohn.

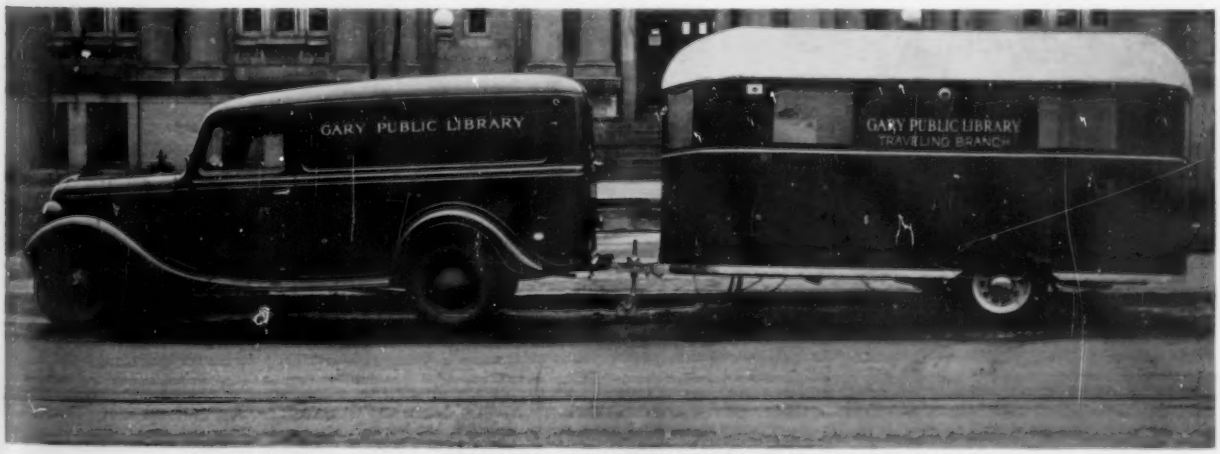
CLEM J. STEIGMEYER,
Secretary, League Against Venereal Diseases,
Fort Wayne, Ind.

Trailer "Bookmobile" Renders Economical Service

GARY, IND.—The Traveling Branch of the Gary Public Library is a standard 12-foot house trailer converted into a library branch. While use of book trucks for extension of library service to outlying areas is not new, the trailer is an innovation in that it overcomes most of the shortcomings of other types of bookmobiles, and greatly reduces the initial investment and the cost of operation. All the service is rendered inside, so that inclement weather does not interrupt schedules. The trailer calls at eleven locations for the same half-day each week, so that the people in each neighborhood know when to expect it. Books not in the trailer are supplied upon request at the next scheduled visit. The outstanding characteristic of the trailer is that it does not tie up a truck all day. The truck leaves the trailer on location and goes about its delivery work, moving the trailer to a new location on its way back to the Library.

The traveling branch houses more than 1,500 volumes comfortably, and its maximum capacity is 2,000 volumes. It circulates more books in sparsely settled parts of the city than do some of our large branches in densely populated areas, and it costs only $469, as compared with branches costing up to $40,000 exclusive of bookstock.

No traveling unit can be offered as a substitute for complete branch service in congested areas; nevertheless, the trailer does render a comparatively high type of service in sparsely settled communities at a cost ranging from 1/25 to 1/50 of the cost of branch service.



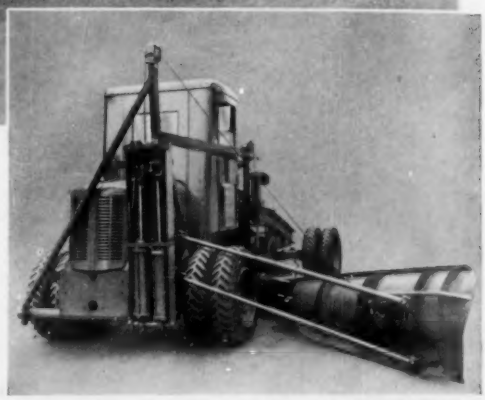
THE TRAILER BRANCH OF THE GARY PUBLIC LIBRARY HITCHED TO THE LIBRARY TRUCK

your SNOW REMOVAL *Worries Melt*

WHEN YOU EQUIP *your trucks with* A-W SNOW PLOWS

● The Austin-Western complete line of V-Type, tapered One-Way and Reversible Straight Blade Snow Plows offer definite design and construction advantages on every snow removal job.

All types are interchangeable on the same push frame . . . are mounted and removed easily and quickly. Push frames are so designed that the strain of bucking the drifts is absorbed by the truck frame—no pushing strain on front axle: no plow weight carried on front springs. Safety releases protect equipment from operating damage and break downs. Accurate, time-saving lifting and lowering of plows is assured by hydraulic pump located within the truck cab. Write for complete information on A-W Snow Plows of any type for mounting on light or heavy trucks. The Austin-Western Road Machinery Co., Aurora, Ill.



The V-Type Truck Plow illustrated above, is widely used for state, county and city work throughout the snow belt.

Motor Grader Snow Plows: A-W "66," "77" and "99" Motor Graders provide many time and cost-saving features when used for snow removal. The "99" . . . featuring the amazing traction and maneuverability made possible by 4-wheel drive and 4-wheel steer . . . has established new high standards of efficiency as a snow plow as well as on construction and maintenance jobs.

AUSTIN•WESTERN

Snow Plows

THE AUSTIN-WESTERN ROAD MACHINERY CO.
1802 Barrows Street, Aurora, Ill.
Tell me more about the:

- ☐ Snow Plows
- ☐ Washing Plants
- ☐ Motor Graders
- ☐ Roll-A-Planes
- ☐ Blade Graders
- ☐ Motor Sweepers
- ☐ 12-Yd. Hydraulic Scraper
- ☐ Crushing & Screening Plants
- ☐ Bituminous Distributors
- ☐ 5-Yd. ☐ 6-Yd. ☐ 8-Yd. Single Cable Scrapers
- ☐ Elevating Graders
- ☐ Trail Cars
- ☐ Shovels and Cranes

Name
Address State SI-658
City

The use of trailers in extension of service has proved successful in Gary, and it has been copied in Logansport, Ind.; Canton, Ohio; San Antonio, Texas; Denver, Colo.; Alliance, Ohio, and Johannesburg, South Africa, among other places, while inquiries received from other cities indicate that its installation is under consideration or in progress in a number of other localities.

RALPH R. SHAW,
Librarian, The Gary Public Library.

New Civic Stadium Provides Modern Facilities

BUFFALO, N. Y.—For the first time in its history, this city has adequate facilities for major athletic contests. Its new Civic Stadium will seat 37,000 spectators. Seating arrangements are such that each spectator is afforded a complete and sweeping view of the playing field.

The construction of the stadium is considered to be a masterpiece of architectural and engineering skill. The eight main exits are so arranged that a capacity crowd of 37,000 may evacuate the stadium within ten minutes. This of course adds to the comfort of the crowds and eliminates the pushing and crowding of impatient fans eager to leave the scene of battle. Four main entrances afford easy access to the bowl. The various seat levels may be reached by ramps constructed in easy inclines to facilitate the climb to the upper seats.

A special type of sod was used in building the field, which is of velvety green. Five miles of drain tile permit the rapid drainage of the playing field, which, it is reported, may be dried within an hour and a half after the heaviest downpour.

Six standards, 50 feet above the top rim of the stadium, are equipped with giant lights which produce 21,000,000 candlepower. This artificial lighting system completely illuminates the field and permits the playing of any kind of game on the darkest night.

The most modern facilities are provided for the comfort and convenience of the athletes who participate in events at the stadium. Two large locker rooms, each accommodating 100, are fully equipped with shower baths and other facilities. A first aid room is included in the interior of the stadium to care for the unfortunate competitor who may be the victim of an accident in some hard-fought play.

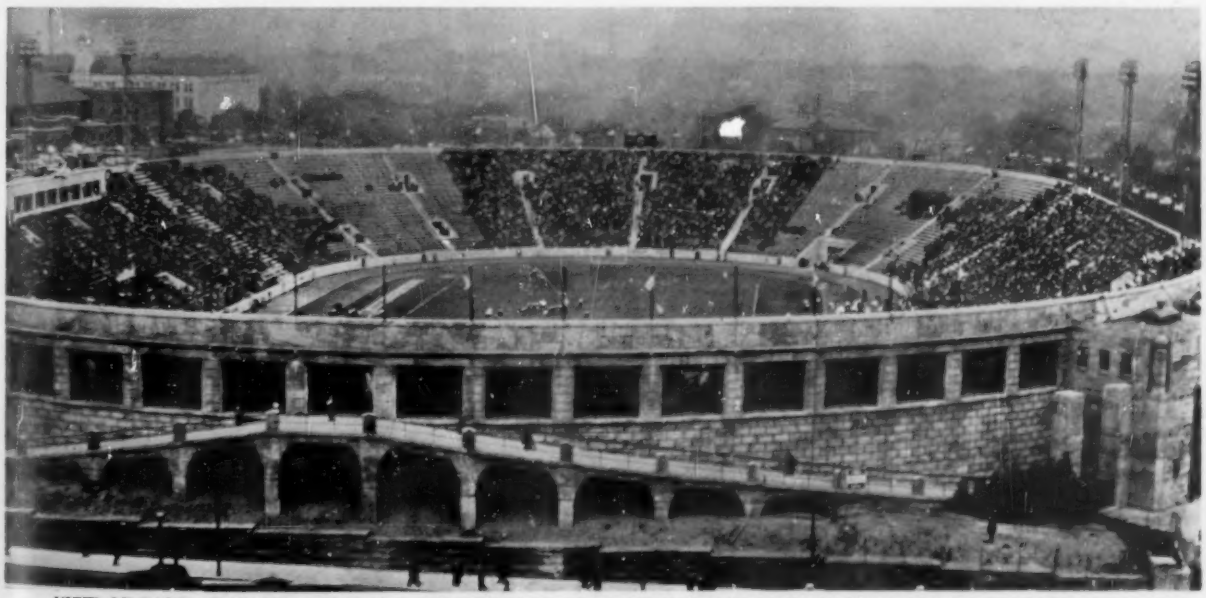
A quarter-mile track encircles the playing field and is constructed for both foot and bicycle races.

Last, but not least, the Buffalo stadium provides the latest and most comfortable facilities for the reporters and writers assigned to cover athletic events. As many as 150 "gentlemen of the press" can be accommodated in the modern press box, situated at a point at the top of the stadium which affords the best possible view of the playing field.

With its new WPA-built stadium to provide for thousands of sports fans, Buffalo looks forward to increasing popularity as an athletic center.

The WPA allocated for the stadium project a total of $2,543,351, most of which was spent for labor, while the city contributed $363,793, expended principally for materials.

EXTERIOR VIEW OF BUFFALO CIVIC STADIUM
Note the light towers reaching above the top rim of the bowl



VIEW OF PART OF CROWD ATTENDING COLGATE-DUKE FOOTFALL GAME, AT BUFFALO CIVIC STADIUM, OCTOBER 8, 1938

HOW TO KEEP UNPAVED STREETS SMOOTH AND CLEAN

Now you can keep your city's outlying unpave streets smooth and clean from gutter to gutter th year 'round at very low cost by using the new A-C Speed Maintainer. It maintains ordinary dirt o graveled streets at from 3½ to 4¾ miles per hour Its speed traveling from job to job—9 m.p.h.—wi enable you to use it all over town, not only for stree work, but for maintaining alleys, park roads an paths . . . smoothing playgrounds and airports . . landscaping park areas, light snow removal, etc First cost is but a fraction of price for the heavier slower equipment normally used for such jobs an you get more done with the Speed Maintainer be cause it works faster and travels faster.

See for yourself how the Speed Maintainer can kee your city's unpaved streets smoot and clean and save the taxpayer money. Ask your Allis-Chalmers dea er for a demonstration.

Speed Maintainer leveling a St. Louis, Mo., street overlooking the Mississippi River. Drawbar of the Speed Maintainer is always free for pulling mowers, light scrapers and other equipment.

Gasoline and Controlled Ignition Oil Track-Type Tractors from 32 to 80 Drawbar H. P. . . . Tandem and Single Drive Speed Patrols . . . Drawn Blade Graders . . . Industrial Wheel Tractors . . . Stationary Power Units from 31 to 102 Brake H.P. . . . two, four and six-wheel scrapers, bulldozers, trailbuilders, loaders, winches and other allied equipment.

ALLIS-CHALMERS

TRACTOR DIVISION—MILWAUKEE, U. S. A.

Pay-as-You-Go Sewage-Disposal and Park Programs

PORTLAND, ORE.—On November 8, the voters of Portland approved, by referendum vote, a ten-year sewage-disposal program and a ten-year park program. Both will be financed on a pay-as-you-go basis.

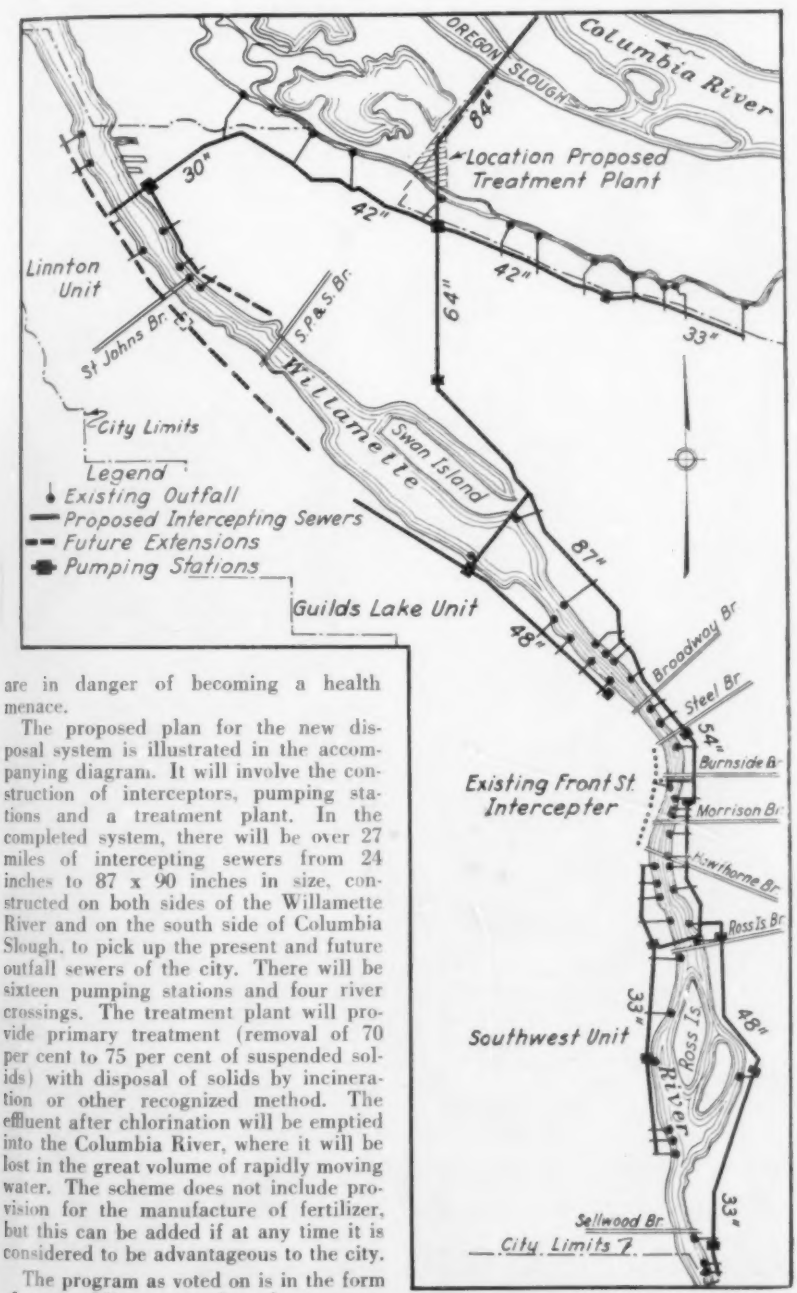
At present, sewage is emptied into the Willamette River and the Columbia Slough, which are so polluted that they are in danger of becoming a health menace.

The proposed plan for the new disposal system is illustrated in the accompanying diagram. It will involve the construction of interceptors, pumping stations and a treatment plant. In the completed system, there will be over 27 miles of intercepting sewers from 24 inches to 87 x 90 inches in size, constructed on both sides of the Willamette River and on the south side of Columbia Slough, to pick up the present and future outfall sewers of the city. There will be sixteen pumping stations and four river crossings. The treatment plant will provide primary treatment (removal of 70 per cent to 75 per cent of suspended solids) with disposal of solids by incineration or other recognized method. The effluent after chlorination will be emptied into the Columbia River, where it will be lost in the great volume of rapidly moving water. The scheme does not include provision for the manufacture of fertilizer, but this can be added if at any time it is considered to be advantageous to the city.

The program as voted on is in the form of an enabling act rather than an authorization for a particular plan, to allow for changes in the condition of the city and for advancement of engineering knowledge, development of better methods of treatment and improved materials.

Construction will be carried out in units—at the rate of approximately one unit a year, advancing as money becomes available.

The program, which when completed will cost about $9,000,000, will be financed by a sewer-user service charge, collected on the basis of water used by the occupant of a building or dwelling, on the accepted theory that sewage flow agrees very closely in volume with water consumption. The rate of charge will be not to exceed one-third the current water bill and will be collected at the same time that the water charge is collected. This method of financing will result in a comparatively small expenditure each year, without a heavy burden at any one time or a heavy interest charge.



PROPOSED PLAN FOR PORTLAND SEWAGE-DISPOSAL SYSTEM
Showing the projects authorized at the recent election

The program will be financed by a special tax levy of 0.4-mill, to be imposed outside the 6 per cent tax limitation of the city, during the ten-year period of park development.

HARRY D. FREEMAN,
Technical Director, City Planning Commission.

Accident Prevention Added to Municipal Personnel Service

LEARNING industry's lesson that physical fitness and good working conditions of employees pay in efficiency and economy, local and Federal Government personnel agencies report successful application of safety and accident prevention programs, recent information from the Civil Service Assembly of the United States and Canada shows.

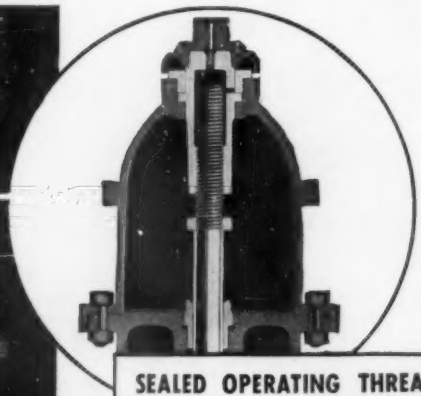
Cincinnati, Ohio, and San Diego, Calif., are among local governments that show profitable results from such programs, according to the Assembly.

Reduction of injury losses in Cincinnati resulted in lowering the compensation insurance premium to one per cent of the payroll, while other cities in the state were paying as high as four per cent. The highway maintenance division, for example, installed a program that included complete investigation of accidents, testimony from injured employees, and sketches and photographs relating to the accidents. These reports were later analyzed for suggestions on accident prevention.

San Diego, which in 1936 set up a special safety committee in the personnel department, reduced compensation insurance costs $30,000. Compensation claims in 1937, compared with 1936, decreased $41,000. During the first eight months of 1938, injury figures were about 61 per cent lower than before the committee was organized, and days lost from work because of injuries were reduced 54 per cent. San Diego also hires a full-time medical examiner who gives all employees periodical medical examinations and is responsible for determining their physical fitness for work at all times.

Before trouble starts, we ask you to

Install WINTERPROOF Mathews Hydrants!



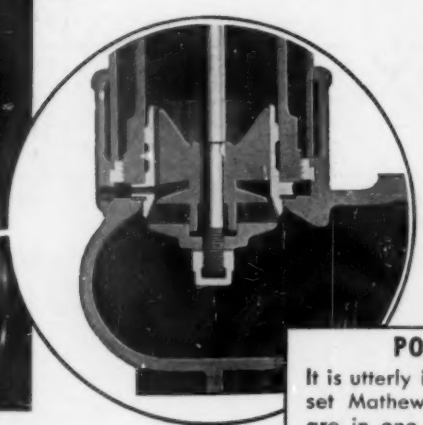
When winter really comes, water will freeze. If it freezes on your hydrants' operating threads or in their stand pipes, those hydrants can't be operated. If it freezes around your hydrant and heaves it loose from the main, your hydrant is out of service, you face expensive repair, and the leaking water can do tremendous damage. The Mathews is built to prevent all these things from happening. We believe it is the only hydrant which prevents them all. Install Mathews Hydrants. Assure your citizens all-winter fire protection.

SEALED OPERATING THREADS

Snow, sleet, stream spray, and internal water are effectively excluded from these threads, which work in a waterproof chamber, protected from above by a roof-like shield operating nut, and protected from below by a cast iron wall.

SLIDING PROTECTION CASE

The upward thrust of frost-heaved ground is exerted, not on the water-carrying inner hydrant, but on a loose protection case which surrounds it and is free to lift with the heaving ground. This frost-protecting sleeve also allows the entire barrel to be unscrewed and lifted out without digging.



POSITIVE AUTOMATIC DRAINAGE

It is utterly impossible for water to stcnd in a properly set Mathews Hydrant. Its main valve and drain valve are in one piece. Therefore, as the main valve opens, the leather faced drain-valve must slide down across the drain-orifice effectively closing it. Conversely, as the main valve closes, the drain valve must open.

MATHEWS HYDRANTS

Made by R. D. WOOD COMPANY

Manufacturers of Sand Spun Pipe (centrifugally cast in sand molds) and R. D. Wood heavy-duty gate valves for water works

400 CHESTNUT STREET, PHILADELPHIA, PA.

When you write for that catalog, kindly mention THE AMERICAN CITY.

Needed—Municipal Statistical Offices

To the Editor of THE AMERICAN CITY:

Any one who proposes a new governmental agency assumes the burden of proof. He must present evidence that the new agency will be worth at least its cost in terms of service rendered.

Accepting this, I believe that there should be created in every large city a statistical agency or office, not attached to any existing department but directly under the chief executive officer (mayor, city manager, commissioner), which will assemble and keep up to date data on the municipality that will be of practical value both to municipal agencies and to those forms of private enterprise that are affected by the growth or development of the community or by municipal services.

Such a statistical office has been discussed by a number of agencies, private as well as public, in the District of Columbia during the last few years. It is evident from their comments that we need more ample and accurate information on a good many subjects than we now possess. Naturally, however, my interest centers on the need for such data in the field of housing. This information is essential to the development of a sound and continuing public housing program. It is equally essential to the development of a sound building program in the field of private enterprise. Our recurring surpluses and shortages, due to guesswork and trial and error, are evidence of the value that adequate data would be to the building and real estate interests.

Lacking such data, we have conducted a great many sporadic surveys. In 1934 the Federal Department of Commerce sponsored real property inventories in 64 cities. These inventories, in spite of being today obsolete, are still being used because of lack of anything more recent. Now it is proposed to have another series of such inventories, somewhat more complete, but again set up as single-operation projects with all the cost that this involves and with the inevitable result that they will begin to become obsolete the day they are finished. A statistical bureau that could keep the findings of such a survey up to date would in the course of ten years probably cost no more than the survey does, and during those ten years would have kept its community constantly informed.

JOHN IHLDER,
Executive Officer, The Alley Dwelling Authority for the District of Columbia.

Tax Valuation of a Utility

To the Editor of THE AMERICAN CITY:

In your November issue that has just reached my desk I note on page 76 a short article entitled "Valuing a Public Utility for Taxation," over the name of Harold M. Olmsted. His closing sentence is as follows:

"It is to be wondered whether it [the utility] would likewise accept the tax valuation as a rate base."

It is also to be wondered whether Mr. Olmsted as a home owner or a property owner would accept the tax assessor's valuation of his individually owned property either as a selling price or as a basis for rentals or return of any kind.

It is probably safe to assume that the ratio of the assessed valuation of the utility to its cost is higher than for residential property in the same community.

J. F. WOOLLEY, JR.

November 21, 1938.
306 Douglas Street,
Salt Lake City, Utah.

MR. OLMSTED REPLIES

To the Editor of THE AMERICAN CITY:

In reply to the letter of Mr. J. F. Woolley, Jr., I do not know what basis, if any, he has for the assumption that the ratio of utility tax valuation to property cost is higher than for residential property in the same community; my own experience is decidedly to the contrary. Nor does Mr. Woolley make it clear as to the relation of "cost" to value of any kind.

However, my question, to which Mr. Woolley excepts, had reference to the great disparity between the values which utilities are wont to claim when seeking to establish the rates which the public shall pay, as against the values claimed as a basis for taxes to be paid the public representatives. Some disparity is no doubt justified in many cases (though it need not always be in the same direction); but I am convinced from long acquaintance with valuation problems that the spread is much too great in most cases.

HAROLD M. OLMSTED.
Consulting Engineer, Illinois Commerce Commission.

November 28, 1938.

Recent City Manager Appointments

W. E. BRACKETT, former Town Manager of Washburn and Oakland, Maine, has been appointed Town Manager of Middlebury, Vt., to succeed Arthur J. Barry, who has resigned to take a position in private business.

The Council of Rehoboth Beach, Md., on November 12 unanimously reappointed Willard H. Johnson to serve as Acting City Manager until January 1, when his successor, C. R. Hill, former County Engineer, reports for duty.

Lynn Kincaid, a local resident for 22 years, has been appointed City Manager of Burkburnett, Texas.

R. P. Reagan, City Manager of Burkburnett since 1929 and formerly Manager of Grandfield, Okla., has been appointed City Manager of Gainesville, Texas, to succeed Clyde G. Wilson.

Howard Rickenbach, of Philadelphia, has been appointed City Manager of West Reading, Pa.

Donald C. Wagner, City Manager of West Reading, Pa., for the past eleven years, has been appointed first City Manager of Ephrata, Pa.

M. L. Wheeler, who has been employed in an executive position in the Arizona State Highway Department, has been appointed City Manager of Phoenix, Ariz., to succeed Houston L. Walsh.

CLARENCE E. RIDLEY,
Executive Director, International City Managers' Association.

The Municipal Bond Market

CALLING attention to the fact that the sale in November of $25,000,000 of bonds by the state of Connecticut (at yields of from 0.15 to 0.97 per cent) marked a new high level for best grade tax-exempts, *The Bond Buyer* in its issue of November 26 adds:

"Of interest in connection with this outstanding piece of state financing is a memorandum issued by one of the largest municipal underwriting houses, pointing out that many of the foremost state and municipal credits are now at levels equal to or higher than those prevailing in December, 1936, when municipal prices generally reached an all-time high. For the record, we reproduce their comparison, based on estimated average prices in December, 1936, and at the present time of the most highly regarded credits:

Maturity (years)	December, 1936 (%)	Present Level (%)
1	0.30	0.15
5	1.10	1.00
10	1.50	1.50
15	1.90	1.80
20	2.00	2.00
30	2.20	2.10

Recent sales of new issues from November numbers of *The Bond Buyer:*

Amount	Borrower and Purpose	Rate (%)	Term (Years)	Basis (%)
$289,000	Worcester, Mass., Emergency	.25	1	.14
133,000	Pittsfield, Mass., Police Station	1.5	5.33 Avg.	1.21
234,000	Binghamton, N. Y., Hospital	1.40	7.85 Avg.	1.38
190,000	Walworth Co., Wis., Highway	2	7 Avg.	1.60
420,000	Dubuque, Iowa, School	1.75	5-11 Ser.	1.71
100,000	Framingham, Mass., Water	1.75	1-20 Ser.	1.73
125,000	Glens Falls, N. Y., Sewage-Disposal Plant	1.90	14.16 Avg.	1.95
155,000	Florence Tp., N. J., Sewer Assessment	2.5	5.33 Avg.	2.38
150,000	Kingston, Pa., Improvement	2.5	7 Avg.	2.38
240,000	Lancaster, Ohio, Sewage-Treatment Plant, Interceptor and Storm Sewer.	2.5	14 Avg.	2.39
800,000	Greenville, S. C., Water Revenue	2.75	20 Avg.	2.79
112,000	Clarksville, Tenn., Electric Plant General Obligation	2.75	8.16 Avg.	2.81
400,000	Scranton, Pa., Judgment Funding and Municipal Improvement	3	15.25 Avg.	2.99
114,000	Union City, N. J., Joint Trunk Sewer, Fire Engine	3.5	6 Avg.	3.33
255,000	St. Landry Parish, La., Public Improvement	3.5	11 Avg.	3.467
230,000	Smithville, Texas, Water and Light	4	8.66-12.33 O.-A.	3.98
126,000	Myrtle Beach, S. C., Sewerage	5.75	12.25 Avg.	5.65

SPECIFY STREAMLINE

TRADE MARK REG. U. S. PAT. OFFICE

COPPER PIPE AND FITTINGS

- *Rust Proof*
- *Vibration Proof*
- *Corrosion Proof*
- *Clog Proof*
- *Leak Proof*

The Mueller Brass Co., Port Huron, Michigan were the first to originate Copper Service Pipe in America. This product has always been made by this Company at Port Huron, Michigan. For identification purposes the pipe is marked every few inches throughout its length as illustrated here.

TYPE M PIPE IS MOST GENERALLY USED FOR CONSTRUCTION PURPOSES; TYPE K FOR WATER SERVICE WORK.

● When your plans call for pipe and fittings on new work, remodeling city projects or for water service lines, investigate STREAMLINE Copper Pipe and Solder Fittings before you decide.

STREAMLINE compares very favorably in cost with ferrous pipe, yet, with the exception of abnormal soil and water conditions, it never has to be replaced due to rust or clogging. The pipe joint is actually the strongest point in the line—constant vibration, resettlement of the fill, etc., has no effect upon it.

STREAMLINE Service Pipe (Type K) is the original copper service pipe, and the first to be produced in America for water service work. It is the most uniformly soft and pliable pipe possible to obtain—it is kept that way through the use of the best copper obtainable for the purpose and through strict laboratory control through every phase of its manufacture.

STREAMLINE Fittings and Type K Copper Pipe are the ideal materials for water works use; for many applications in filtration plants; in aeration lines and in heating coils using the sludge digestion system in sewage disposal plants—and for all general plumbing and heating purposes.

COPPER PIPE PLUS BRONZE SOLDER FITTINGS PRODUCE THE

MOST PRACTICAL PIPE-JOINT

STREAMLINE
PIPE AND FITTINGS DIVISION
MUELLER BRASS CO.
PORT HURON, MICHIGAN

Traffic Control and Facilitation

Conducted by Publications Committee, Institute of Traffic Engineers, 1 Park Ave., New York
Paul L. Green, Chairman; George W. Barton, Kenneth W. Mackall, Miller McClintock, Robert A. Mitchell, William R. McConochie, Arnold H. Vey, Joseph L. Wehmeyer, William A. Van Duzer, Thomas J. Seburn, Roger L. Morrison, Otto K. Jelinek, William C. Brandes

It's the Same Old Problem in England, as Shown by Scotland Yard's Assistant Commissioner

WHEREAS in this country the traffic casualties are fairly evenly divided between pedestrians and motorists, in England only 14 per cent of those fatally injured are motorists, while 47 per cent are pedestrians, 22 per cent bicyclists, and 15 per cent motorcyclists. Whereas American traffic fatalities are counted in the thirty thousands, English traffic deaths are between four and five thousand annually.

ALDERMAN W. MUIRHEAD, CHAIRMAN OF THE HEALTH COMMITTEE OF THE CITY OF LIVERPOOL, AND CITY ENGINEER T. MOLYNEUX, INSPECT AN ELECTROMATIC LIGHT-RAY TRANSMITTER 3 FEET HIGH DIRECTING A BEAM OF LIGHT TO THE RECEIVERS ON THE OPPOSITE PAVEMENT AT MUIRHEAD AVENUE AND QUEEN'S DRIVE

But there is a traffic problem in England, for the four or five thousand deaths are not only so many in a population of 40 millions, but so many in a tight little isle. H. Alker Tripp, Assistant Commissioner of Police, Scotland Yard, has just issued a book (Edward Arnold & Co., London) compact with facts on "Road Traffic and Its Control." In the very beginning he speaks of "an intricacy of contending factors," which certainly strikes the keynote for American as well as English thinking and acting in the new world of racing, weaving, parking, high-powered vehicles in sleepy, old-fashioned streets and roads.

There are many familiar problems in this book:

The regulation of pedestrians
The enforcement aspect
Condition of the vehicle
The accident-prone driver
Street lighting
White lines
Education, engineering, enforcement

Mr. Tripp points out that accidents are multifarious in character, effect and immediate cause, and analysis results in complicated tables, and long columns of classified causes; but that *nearly 90 per cent of the total casualties are caused by unexpected encounters.* The italics are his. "These unexpected encounters are in the main due to human errors of some kind or other; and the lethal effect of every such error is increased as vehicle speed is increased, and is reduced as vehicle speed is reduced." The means of prevention is to keep in line, which calls for dividers and markings. The way to handle speed, which is inevitable, "is to secure higher and safer road speeds by gradual elimination of the circumstances which render those speeds dangerous." This is in line with the best thinking in the United States, where the difficulty of making good drivers out of poor material is shifting technical consideration to the replacing of obsolete roads with motor ways. An immediate preventive is to convince the driving public of the vital need to maintain efficient braking in the vehicles; where a collision is imminent, the sole thing to try to do is to stop before it happens.

Another immediate preventive is to install traffic signals where they belong. At 18 intersections, before signals were installed there were 157 casualties, after installation 107 casualties; at 12 other intersections, 56 casualties before and 31 after, in comparable periods.

"The problem of safety on the railways has only been solved with the help of very elaborate and costly mechanical arrangements for coordinating movement and for isolating unit from unit. There seems little doubt that safety on the road must be bought and paid for in the same way."

VEHICLE-ACTUATED SIGNALS CONTROL THE COMPLEX INTERSECTION OF TWO MAIN STREETS AND TWO SECONDARY STREETS IN LIVERPOOL, ENGLAND

Light-ray detectors at two points on Queen's Drive and two points on Muirhead Avenue in advance of the intersection, and across each roadway of Queen's Drive from the center island, give individual attention to traffic on every roadway of the intersection, but permit the heavier traffic on Queen's Drive to flow freely with least delay to cross traffic

A "Short Cut" for the Busy Buyer

City of Moline, Illinois
office of
Robert M. Benell
City Civil Engineer

Mr. Edgar J. Buttenheim,
The American City Magazine,
The Municipal Index,
470 Fourth Avenue,
New York City, New York.

Dear Sir:

This is to acknowledge receipt of your last copy of the Municipal Index and I wish at this time to say that the Municipal Index is used in my office as a guide more than any other catalog or publication of this type that I have.

I believe that if you would change the name of the Municipal Index to Municipal Encyclopedia it would come closer to describing just what is contained in the covers.

My personal experience has been, that if I want a certain article I first like to know who the manufacturers of it are and then I write them accordingly for their detailed descriptions of the machinery they sell.

I have used the index in a great many cases and find that it is invaluable around my office to myself and to the various other departments and contractors who look for information.

Thanking you, I remain,

Yours very truly,

Robert M. Benell

Robert M. Benell,
City Civil Engineer.

Any manufacturer who does not use adequate space in the Municipal Index to illustrate and describe his products for municipal and water works uses is overlooking one of the most efficient means of gaining effective sales producing publicity.

THE MUNICIPAL INDEX
470 Fourth Ave., New York

Accident Frequency on a New Highway

A CLOSE check has been kept of accident frequency on the Merritt Parkway, which was opened to the public on June 29, 1938. For the first three months (June 29 to September 29) on that portion of the Parkway open between the New York line at Greenwich and Main Street at Norwalk, 17½ miles, 46 accidents have occurred, 40 during daylight hours and 6 at night, no fatalities. Of the 6 accidents at night, 4 were personal injury in which 7 persons were injured. Of the day accidents, 14 accounted for injuries to 21 persons.

A total of 75 drivers were involved in the accidents: 48 out-of-state operators, 26 Connecticut operators and 1 unknown (a hit-and-run case). There were 18 arrests made as a result of 46 accidents, 15 of the operators being apprehended for reckless driving, 1 for being under the influence of liquor, and 2 for violation of the rules of the road. Accidents occurring during clear weather amounted to 38, with only 8 in rainy weather. Regarding the direction of travel, 21 accidents occurred while drivers were going eastbound on the Parkway, and 25 while going westbound; 21 involved 1 car, 21 involved 2 cars, 3 involved 3 cars and 1 involved 4 cars. The causes were as follows:

Inattention—5
Operating too fast for course of road—3
Improper passing—4
Too fast for traffic conditions—8
Fell asleep—3
Under the influence of liquor—1
Following car too closely—6
Failure to obey stop sign—1
Failure to grant right-of-way—2
Failure to signal—1
Defective equipment
  Wheel coming off—1
  Steering gear—3
  Tire blowout—7
Hit-and-run—1

During the same period (June 29 to September 29), for approximately the same distance on the Boston Post Road, there occurred 111 accidents including 1 fatality. The 1937 comparable period for the Boston Post Road shows a total of 186 accidents. This means, therefore, that for these three months there has been a decrease of approximately 40 per cent. One may assume, therefore, that with a certain amount of diversion of traffic resulting from the opening of the Parkway accident frequency has been materially reduced.

On the Merritt Parkway the 18-hour count at the Greenwich end for both directions totals 18,456 vehicles, as compared with 16,885 vehicles on the Boston Post Road at Bryam Hill. At the Norwalk end of the Merritt Parkway, the 18-hour count is 14,686 vehicles, compared with 14,005 vehicles on Connecticut Avenue in Norwalk on Route U. S. 1.

In view of the fact that the volume count was taken during the latter part of September at a time when there was an apparent decrease from summer volume, we can safely say that there has been an average of between 20,000 and 25,000 vehicles per day using the Parkway for these first three months. Based on this assumption, and translating number of cars into million vehicle-miles of travel, it is estimated that there has been approximately 354,375,000 vehicle-miles of travel on the Parkway for these first three months. This means, therefore, that for every 7,700,000 vehicle-miles traveled on the Parkway there has been only one accident. This, in the opinion of the writer, is an exceptionally fine showing for a new highway, particularly when thus far no fatalities have occurred.

Strict enforcement of all motor-vehicle laws has been in effect on this highway.

WILLIAM C. HANSEN,
Traffic Engineer, State Traffic Commission of Connecticut.

It's a Question

To the Editor of THE AMERICAN CITY:

Do any cities have municipal ordinances setting up fees to cover the cost of painting the curb, maintaining the signs and the printing of the ordinance for loading zones and no-parking zones which benefit individual persons or companies?

J. C. VINCENT,
Traffic Engineer, City of Minneapolis, Minn.

DIRECTOR JOHN JASTER, JR., OF OHIO DEPARTMENT OF HIGHWAYS, COLUMBUS, HAS ORDERED THE ABOVE TYPE OF SIGN PLACED AT ALL CURVES, TO INDICATE SAFE SPEED

Deliberate Driving Safer Than Jumpy

IN October and November, 1936, the Aetna Life Insurance Co.'s tests of driving skill were administered in the Department of Vehicles and Traffic of the District of Columbia to applicants for new and renewed drivers' permits, to drivers whose permits had been revoked or suspended, and to other interested persons.

Seven-year data, covering 1,530 of these licensed drivers, are now being analyzed, so that it will also be possible to compare the histories of many of the drivers before and after they took the tests, to see whether the claims of their beneficial educational results can be substantiated.

Preliminary figures appear to indicate that drivers with slow reaction time have better accident records than those with fast brake-reaction time. Specifically, the drivers with reaction time of one-half of a second or less show 40 per cent more accidents than would be expected by chance, and the drivers with reaction time of three-fourths of a second or more have had 40 per cent fewer than their proportionate share of the accidents. It would seem that the drivers with fast reaction time may be of the jittery or nervous type, who will apply the brakes so fast that they lose control of the car either by skidding or nervous reaction, while the drivers with slow reaction time will be more positive in doing the right thing at the right time.

W. A. VAN DUZER,
Director of Vehicles and Traffic, Washington, D. C.

Autos Carry 1.48 Persons; Coaches, 35.72, Youngstown, Ohio

MASS transportation facilities serve far more persons per unit than do passenger automobiles. The average number of persons transported per mass carrier in Youngstown, Ohio, was 35.72, whereas the average per passenger automobile was 1.48, according to a traffic survey made by Jensen, Bowen & Farrell, engineers. There can be no question of the relative efficiency of these two types of carriers in regard to economy in the use of street space, says the report. If the number of persons using mass-transportation facilities had to resort to passenger automobiles as a means of transportation, and if the average of 1.48 persons per passenger automobile remained the same, 29,730 additional passenger vehicles would be required. The streets could not possibly accommodate this additional load. Thus, it will be seen that mass transportation is a vital element in the traffic problem of Youngstown, and that, in any plan of traffic control and regulation, its requirements must receive due consideration, as must the effect of its operation on the free movement of traffic. The schedule speed of mass carriers helps determine the speed of all traffic.

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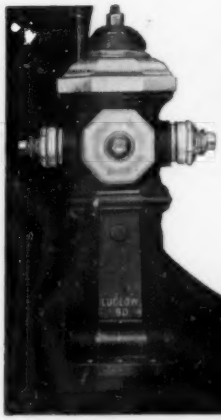

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Zoning and Planning Notes

With the cooperation of
EDWARD M. BASSETT
Author of "Zoning" and of
"The Master Plan"

Roadside Protection—Architectural Control

CALIFORNIA.—*County of Monterey v. Bassett*, Superior Court for the County of Monterey, October, 1938, not reported.—The defendant Bassett had a service station in existence at the time the county zoning ordinance was extended, in 1934, to cover the margins of the 75 miles of the Coast Highway in Monterey County. A commercial district was created to include his station. Shortly afterward he moved his building a half-mile down the road into an agricultural district without having secured a permit or a reclassification of the new site. This is an action to enjoin him. The section of the zoning ordinance which Bassett has violated and which he claims is invalid provides for the approval of plans and color schemes of structures by the Board of Supervisors of the county on the advice of the County Planning Commission. While the ordinance says nothing about it, the Planning Commission has appointed an Advisory Committee consisting of five certificated architects to pass on plans prior to any action by the Commission or the Supervisors. In the words of the ordinance:

"The intent of the above provisions is to protect adjoining property values, or the investment of public funds spent in the construction of scenic roads, or the general welfare inherent in an orderly and decent treatment of the scenery of the state of California, by insuring buildings in good taste, proper proportion, and in harmony with their surroundings. The color of natural country rock, peeled or unpeeled logs, or that of unpainted redwood lumber will be approved. Any other colors and/or combination of colors shall be such as to harmonize with the surroundings. In order to establish standards of good taste and proper proportion, those certain drawings entitled 'Drawings Illustrating Architectural Standards for Certain Areas' traced in [the given zones], copies of which drawings are on file with the Clerk of the Board of Supervisors, are hereby adopted, and said Clerk is hereby directed to cause true copies of said drawings to be placed on record in the office of the County Recorder of this county. Said drawings show desirable architectural standards but are not designs which must be copied in order to secure approval of plans. Any plans which as a matter of fact equal the taste and the proportions illustrated thereby, will be approved."

Farm dwellings and structures are exempted.

In deciding upon the validity of the ordinance, the judge quotes the following from the complaint:

"That said residents, tourists and visitors will make use of said Highway largely on account of the enjoyment they may derive from the outstanding scenic beauty and grandeur of the country traversed.

"That said scenic attractiveness is a public asset and its conservation against being despoiled by a disorderly and helter-skelter development of the margins of said Highway will safeguard the general welfare and prosperity of the state.

"That visitors and tourists attracted to the use of said Highway will contribute to the general prosperity of Monterey County.

"That the use made of said Highway by those persons traveling thereon will increase the value of real property bordering thereon and contiguous thereto."

In deciding that the ordinance is valid, the Judge recognizes that the courts would not have sanctioned such regulation a few years ago, but hopes that they are sufficiently advanced to do so now.

Private Streets

ILLINOIS.—*People ex rel. Schimpff v. Norvell*,* 13 N. E. 2d, 960 (Supreme Court, February 16, 1938).—Jane W. Schimpff owned a lot 180 x 440 feet in size upon which she desired to build ten single-family homes fronting upon a private entrance drive provided for access. She prepared a plat but did not record it, and applied for a permit to erect the first home on a tract 64 x 80 feet in size containing 5,120 square feet. The Commissioner of Buildings refused to issue the permit solely because the lot did not have its principal frontage upon a "street or officially approved place" as required by the zoning ordinance. The plan complied with all other zoning requirements.

The owner appealed to the Circuit Court of Peoria County, and the Court ordered issuance of the permit. The city appealed to the Supreme Court of Illinois.

The question before the Court was whether the street frontage requirement of the zoning ordinance was valid.

The decision of the Supreme Court reads, in part:

"There is no rule of law which forbids the subdivision of land by its owner in such a way as to establish over it only private ways for the sole benefit of those who may become owners of lots in the tract, and in which the public, as such, will have no interest and over which it will have no control. (*City of Chicago v. C. B. & Q. R.R. Co.*, 139 Ill. 351; *City of Chicago v. Drexel*, 141 Ill. 89.) The privilege of a citizen to use his property according to his own will is not only a liberty but a property right, subject only to such restraints as the common welfare may require, and while new burdens may be placed on the property when the public welfare demands it, this power is limited to enactments having direct reference to the public health, comfort, safety, morals and welfare. . . . .

"There is one objection to the section of the ordinance which we are considering which makes it unnecessary to consider other sections thereof or other objections thereto. Any ordinance which invests arbitrary power in a public official which may be used in the interests of some to the exclusion of others is unreasonable and void. (*Cicero Lumber Co. v. Town of Cicero*, 176 Ill. 9; *City of Chicago v. Trother*, 136 Ill. 430.) The ordinance before us prescribes no conditions or terms upon which the Commissioner of Buildings is to determine what shall be an 'officially approved place.' In this respect his action is neither controlled, limited, nor guided by any rules, definitions or requirements in the ordinance. So far as that enactment is concerned, he is left free to approve a private way proposed by one citizen while disapproving a similar one for someone else. For this one reason, without considering or passing upon other objections, it is necessary to hold that the Circuit Court of Peoria County reached a correct conclusion, and its judgment will be affirmed."

The Court therefore ordered issuance of the permit.

EDITOR'S NOTE.—In this case there seems to have been no statutory authority for withholding the permit. Such statutory provisions are a part of modern city planning laws ("Modern Planning Laws," by Bassett and others, Harvard City Planning Studies VII, pp. 44, 87, Harvard University Press, Cambridge, Mass.), and such a law, in New York State, has received, in general, the approval of the courts. (*Headley v. City of Rochester*, 272 N. Y. 197, 5 N. E. 2d, 198, reported in our Notes for February, 1937.)

* From the Notes of the Chicago Regional Planning Association.

Filling Station

MISSOURI.—*Texas Co. v. Kansas City*,* U. S. District Court for the Western District of Missouri, January, 1938 (unreported).—The Council of Kansas City, Mo., enacted an ordinance prohibiting a filling station on a designated lot, which lot was one of the four corners of an intersection which had heavy traffic and was quite near to a church and school. The proposed filling station would not violate the zoning ordinance, and as a matter of fact there was a conforming filling station on one of the other of the four corners. The planning and zoning authorities had no part in the controversy or ordinance about the filling station. The Court upheld the ordinance and stated that neither the zoning ordinance nor zoning was in any wise involved in the issues in the case, that the ordinance was not enacted under the authority of the zoning statute, but was a safety regulation under the general power of the city to regulate private property for public safety. The question whether, when a city has a zoning ordinance, the general power to regulate the uses of land is affected, was not raised or discussed so far as the opinion shows.

* News Letter, American Society of Planning Officials, January, 1938.

Zoning Ordinance—Residential District—Boarding House

NEW YORK.—*People v. Gold*, 9 N. Y. Supp. 2d. 264 (Court of Special Sessions, Westchester County).—Under a zoning ordinance permitting the operation of boarding houses in residence districts, the term "boarding house" did not include a "health farm" operated as a commercial establishment, primarily to furnish health and reducing treatments rather than rooms and board, particularly where the owner did not reside on the premises, and occupancy of the guests was transitory.

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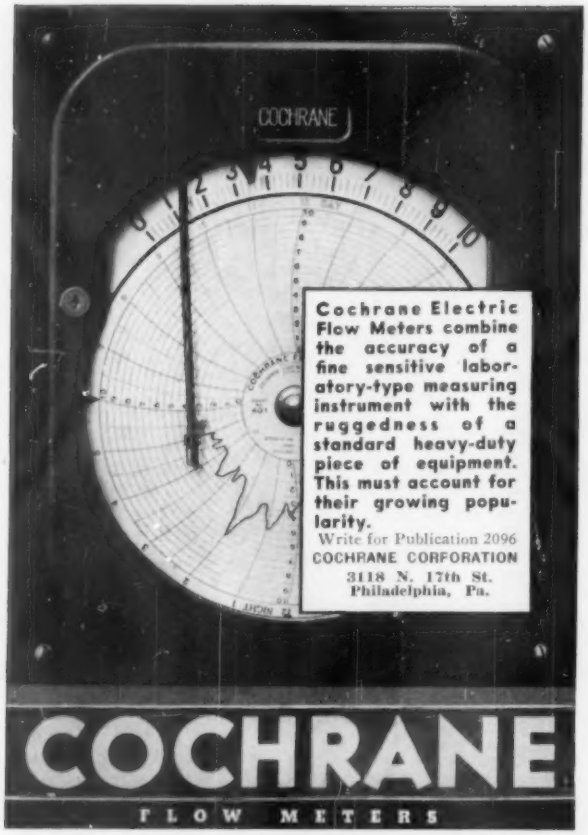

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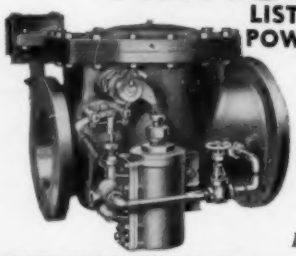

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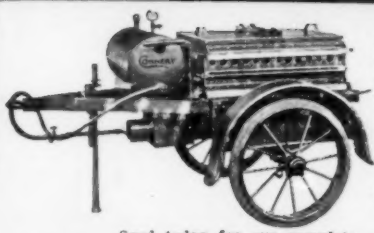

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HEALTH GREETINGS

rate, for a certain time; but at an inn there is usually no express engagement; the guest, being on his way, is entertained from day to day, according to his implied contract. Usually a boarding house is the private residence of the keeper of it.

And the term "boarding house" will not be extended to include a commercial establishment the primary purpose of which is to furnish health and reducing treatments rather than rooms and board.

Zoning Ordinance—Earth Products

NEW YORK.—*Town of Harrison v. Sunny Ridge Builders, Inc.*, Supreme Court, Westchester County, reported in *New York Law Journal*, October 15, 1938, p. 1149.—This is an action to prevent by injunction the defendants from removing the top-soil from their land in a residential district to the depth of 12 inches, for delivery to the World's Fair grounds. Held that the removal is lawful. The defendants do not contemplate the erection of any permanent structures on this land, or the prosecution of any permanent business operations on it.

EDITOR'S NOTE.—It is generally recognized that the owner may remove earth products from his land, but may not, contrary to a zoning ordinance, treat them there. (Bassett, "Zoning," p. 215.)

Zoning Ordinance—Comprehensive Plan—Garage

NORTH CAROLINA.—*Shuford v. Town of Waynesville*, 198 S. E. 585 (Supreme Court, September 21, 1938).—In July, 1936, the town of Waynesville adopted a zoning ordinance establishing as the first zone, to be known as the "Business Section A," approximately one block, "the remainder of said town to be hereafter set aside and established in separate zones as may be determined" pursuant to the statute. Within that zone no gasoline service or filling station could be established.

Previous to the passage of this ordinance, the plaintiff Shuford, owner of a parcel of land in this "first zone," obtained a permit authorizing him to erect a filling station on his lot, but the town authorities, relying upon this ordinance, notified him not to construct it, and Shuford brought this action to enforce his right to build according to his plans.

After this action was begun, the town adopted a second, or "comprehensive," ordinance, under which it has appointed a Zoning Commission and a Board of Adjustment; but the Zoning Commission has not recommended the boundaries of the various districts, or appropriate regulations to be enforced in them, or filed any final report with the legislative body of the town, as the state enabling act requires.

Held by the Court that the original zoning ordinance is not in accord with any comprehensive plan, nor does it provide for the zoning of the town as a whole. No provision for a hearing or appeal is made. No zoning commission or board of adjustment is appointed or provided for. The ordinance, therefore, is not in accord with the state zoning enabling act.

Nor does the adoption of the second ordinance avail the town; for the Zoning Commission has not filed a report, dividing the town into districts and recommending restrictions to be enforced on them.

The fact that the ordinance is not in accord with the zoning statute does not mean necessarily that it is void. The town has the right, in the exercise of its police power, to regulate garages; but this regulation is arbitrary, discriminating, and fails to operate uniformly on all persons similarly situated; the district from which such business is excluded not being selected in the exercise of reasonable discretion. There are other filling stations in the area in question. A filling station is not a nuisance per se.

The plaintiff therefore has the right to erect the filling station on his lot, as he desires to do.

Improving Municipal Administration

Current Items from the Public Administration Clearing House

Voters Reject Most Tax Proposals at November Elections

VOTERS rejected most of the tax proposals placed on the ballots at the election of November 8, according to information reported by the National Association of Assessing Officers.

Arizona refused to join the ranks of 13 states granting tax exemptions on homesteads, by defeating a $5,000 exemption. California also rejected a $1,000 exemption on improvements on owner-occupied land which was a part of a land-value tax proposal. Florida and Louisiana, however, enlarged existing exemptions. Florida added widows and single persons as home-owners exempt from all property taxes on properties up to $5,000 valuation. Louisiana, which has been exempting homesteads up to $1,000 value from most property taxes, added a measure exempting homesteads built or purchased after January 1, 1938, from three years' taxes, provided prevailing wages are paid in construction, and all materials are American-made.

Voters registered disapproval of several other tax proposals balloted on in the various states. Along with California's defeat of a proposal to substitute a land tax for sales, use, private automobile and other levies, went defeat in Maryland and Washington of graduated state income taxes. Proposal of the New Hampshire constitutional convention to authorize a broader tax base, including a sales tax and graduated inheritance and income taxes, was also voted down.

Colorado voters refused to repeal the chain license and tax. Oregon voted down a transactions tax proposal for support of old-age pensions. Washington voters renewed a 40-mill limitation on property taxes in effect since 1932. In an "omnibus" amendment designed by the 1938 constitutional convention, New Yorkers among other things prohibited the ad valorem taxation of intangibles and the taxation of undistributed profits.

In both Louisiana and Arkansas, voters passed on tax exemptions of industry. Arkansas approved exemption of new industries and manufacturing plants from property taxes for a maximum ten-year period. Louisiana restricted to the next three years the period in which the State Board of Commerce and Industry may negotiate contracts for tax exemption of new factories.

Earmarking of gasoline tax funds for road purposes only, passed in every state where it was proposed. These included Alabama, California, New Hampshire and Michigan.

Eight Cities Pass New Civil Service Laws; Three Extend Merit Systems

ADOPTION of new civil service provisions in eight cities and one county, and extension of the merit system in three cities at the November elections are reported by the Civil Service Assembly of the United States and Canada.

Six New Jersey cities voted to place all municipal employees under civil service. Monmouth County, N. J., also made the same provision, while 11 New Jersey cities rejected civil service proposals at the polls. Municipalities adopting the merit system were Millburn, Park Ridge, Rutherford, Teaneck, West Orange and Woodridge. Similar proposals lost in the cities of Bayonne, Belleville, Denville, East Rutherford, Garfield, Madison, Passaic, Dunellen, Fairlawn, and Bergenfield.

Garden City, Mich., voted to place the position of chief of police under civil service, while Highland Park, Mich., approved a merit system for all city employees without qualifying examinations.

Other civil service gains as the result of the recent ballots included the extension of the system in Detroit to cover employees of the municipal House of Correction. Enactment of the new statute

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Cleveland voters also approved the extension of civil service to unskilled laborers. The vote will place more than 5,000 workers on the merit basis. In Portland, Ore., voters approved an amendment to the city charter permitting the Civil Service Commission to prescribe any qualifications which it deems proper for any classified civil service position. The amendment also provided definite age limits for members of the Fire Department.

The addition of the 8 cities brings the total number adopting civil service provisions during 1938 to 16. Gains in the merit system during the year also include the placing of nearly 100,000 additional Federal positions under civil service, and the extension of the system to a number of state welfare and unemployment compensation employees.

The City Manager Plan at the November Election

WITH the addition of one city at the November 8 elections, 475 municipalities of the United States and Canada now operate under approved council-manager governments, the International City Managers' Association reports.

The city adopting the council-manager plan by popular vote in the current election was Yonkers, N. Y., population 135,000. Greenwood, S. C., favored a council-manager plan by a 5 to 1 advisory vote, but will require the approval of the State Legislature before the plan can be put into effect.

Paducah, Ky., voted at the November election to retain its manager government, while Ashland, Ky., decided to abandon it. City manager proposals lost by narrow margins in Battle Creek, Mich., and in four Massachusetts cities—Quincy, Northampton, Chicopee, and Cambridge. The Cambridge proposal, which lost by fewer than 1,000 votes, may receive a recount.

The new city manager adoptions bring the total this year to nine, three less than the total for last year. Other cities which put the plan into effect in 1938 were Lexington, Va., Verdun, Que., Tappahannock, Va., Ephrata, Pa., Dover-Foxcraft and Milo, Maine, and Bendix, N. J. Bendix is the smallest city manager municipality, with a population of 35.

Centralized License Bureau Approved by Many Cities

A TREND toward centralizing license bureaus in the city hall is indicated in recent reports received by the Municipal Finance Officers' Association from 17 cities.

Nearly all officials in these cities, which are in the 300,000 and more population class, regard a central license bureau as desirable for public convenience and close financial control. Completely centralized bureaus for all kinds of licenses from business to dog licenses are operated by Cincinnati, Ohio, Minneapolis, Minn., Newark, N. J., and San Francisco, Calif. Rochester has passed an ordinance to set up a centralized bureau, but it has not yet gone into effect.

Although centralized license bureaus are common, most cities usually handle permits through the various city departments, such as the building and electrical divisions. Officials of these cities believe that central permit bureaus are desirable but impractical, primarily because permits are issued to fulfil regulations of some ordinance and as a rule require investigation by a highly technical staff. A centralized permit bureau, they say, would require too much specialized knowledge on the part of clerks.

Many Cities Rule Out House-to-House Peddling

BETWEEN 400 and 500 cities during the past four years have adopted ordinances prohibiting door-to-door selling or soliciting unless the householder has invited it, the American Municipal Association reports.

The ordinances, modeled after a regulation originated by Green River, Wyo., are more stringent than most ordinances controlling the transient vendor, which usually just impose a license and certain other rules, the Association pointed out.

Courts hearing suits that have resulted from enforcement of the ordinances do not agree on their validity, according to the Association. Federal circuit and State Court decisions in Wyoming upheld the Green River ordinance. Two State Supreme Courts—Florida and South Carolina—declared similar ordinances in their states void. The United States Supreme Court, faced with an appeal on the Green River case from the State Court decision, declined to review it, because no Federal question was involved. In effect, the validity of the ordinance in that case was therefore approved.

Twenty Small Cities Begin Planning Activity

FACED by many of the same problems that confront their larger neighbors, a record number of small cities throughout the country are engaging in long-term planning activity, the American Society of Planning Officials reported today.

Since the beginning of 1938 at least 20 cities under 50,000 population have established planning boards or commissions, many of them by authorization of recent state enabling acts permitting third- and fourth-class cities to undertake organized planning.

In Massachusetts, where state legislation broadening the power of small cities to engage in planning was passed in 1936, at least six cities set up planning agencies during the current year. In all these cities the new planning boards are authorized to prepare master plans for the city, to supervise street and park development, and to exercise control over land subdivision. The cities include Adams, Dalton, Middlefield, North Providence, South Hadley and Southwick.

Establishment of other local planning boards in widely scattered sections of the country is reported by the Society as follows: Superior and Waukesha, Wis.; Clear Lake and Hawarden, Iowa; Concord, Bartlett, Hopkinton and Hudson, N. H.; Brookhaven, Amityville, and North Pelham, N. Y.; Ecorse, Mich.; Santa Cruz, Calif.; and Yakima, Wash.

Four Cities Expand Planning Activities to Include Suburbs

EXPANSION of planning activities in four cities to deal cooperatively with problems of their respective suburbs was reported recently by the American Society of Planning Officials. Cities which recently established regional planning associations to cover their entire metropolitan areas are Denver, Colo., Cleveland, Ohio, Pittsburgh, Pa., and Tucson, Ariz.

Rapid suburban growth in these cities, similar to that of most metropolitan centers, posed problems relating to public utilities, housing, zoning and subdivision regulation. Through extension of planning activity the cities, as one objective, will attempt to protect residential areas from the over-expansion of business districts, which would tend to reduce residential property values.

The planning agencies will assist in controlling developments of the outlying areas to prevent the spread of rural slums. In the Denver area, for example, the program includes the establishment of sewerage and water districts for unincorporated villages. By this means, Denver plans to avoid creation of suburbs which, unable to support such municipal services, might necessitate annexation to the city or become a general health menace.

Similar planning objectives are reported for the Cleveland Regional Planning Association,* composed of 39 communities in Cuyahoga County. Pittsburgh's Regional Planning Association proposes a program of traffic study, waterfront development and flood control to include its suburban area, in addition to providing suitable land use, while the Tucson planning group will attempt to coordinate neighborhood planning for its entire metropolitan territory.

* See THE AMERICAN CITY for November, page 76.

Schools Offer Housing Instruction

ELEVEN colleges and universities in seven states are now offering courses designed to aid persons toward careers in the new profession of housing, the National Association of Housing Officials reports.

Schools listed by the Association include New York University, Columbia University, Blue Ridge College, Massachusetts Institute of Technology, Georgia School of Technology, University of Minnesota, Sarah Lawrence College, Wayne University, University of Buffalo, University of Chicago, and The New School for Social Research.

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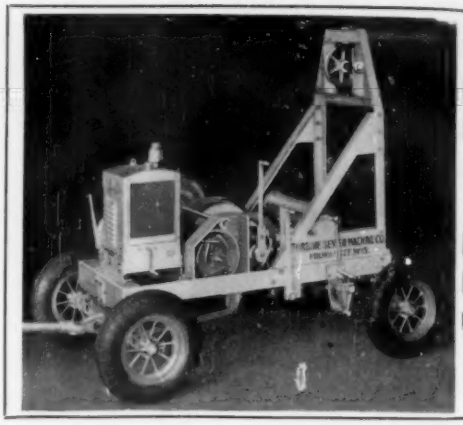

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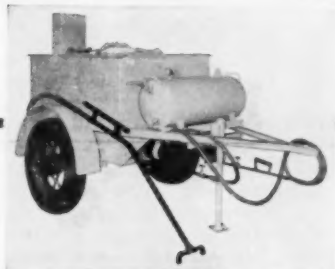

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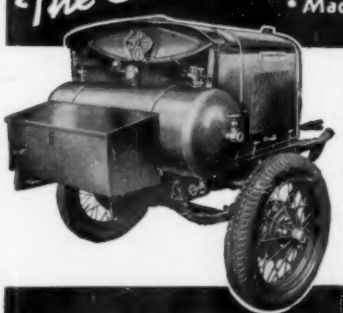

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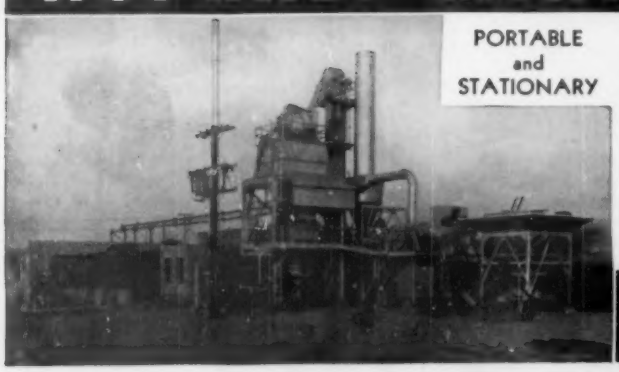

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The City's Legal Rights and Duties

Conducted by A. L. H. STREET, Attorney at Law

Accidents

City held liable for injury to railway brakeman knocked from top of freight car by low-hanging electric wire of city, city not showing freedom from fault in condition of wire (Oklahoma Supreme Court: *City of Duncan v. Canan*, 82 Pac. 2d, 663).

Emergency relief worker hired by County Road Commissioners held entitled to workmen's compensation award against Commissioners and not against city, for injury sustained while working on city street (Michigan Supreme Court: *Deile v. City of Crystal Falls*, 281 N. W. 542).

City held not liable for injury to one who tripped over a slight obstruction on the unfinished floor of an auditorium while attending the dedication of the building (Missouri Supreme Court: *O'Malley v. City of St. Louis*, 119 S. W. 2d, 755).

Abutter held not liable for injury to pedestrian who fell where sidewalk had become dangerous through formation of frozen wheel-ruts in snow, the dangerous condition not having been created by the abutter or his agents (Massachusetts Supreme Judicial Court: *Bamberg v. Bryan's Wet Wash Laundry*, 16 N. E. 2d, 653).

City employee held entitled to workmen's compensation award for loss of vision of one eye when cinder entered it while he was loading ashes (New York Supreme Court, Appellate Division, Third Department: *Albino v. City of New York*, 6 N. Y. Supp. 2d, 915).

Bond Issues

Taxpayer held not entitled to enjoin issuance of bonds for municipal auditorium on ground that site larger than necessary was selected, nor because proposal voted on was for "a public building," nor because cost of building depended on whether or not Federal aid should be secured, especially where the taxpayer did not sue promptly (Kansas Supreme Court: *Drenning v. Board of Commissioners of City of Topeka*, 81 Pac. 2d, 720).

Under statute, city held empowered to issue bonds to repair and restore factory property acquired at tax sale, to facilitate leasing or resale of property (New York Supreme Court, Appellate Division, Fourth Department: *Walrath v. City of Salamanca*, 6 N. Y. Supp. 2d, 513).

Business Regulations

Ordinance regulating general contractors, requiring examination showing qualifications, and imposing license fees, upheld (Florida Supreme Court: *State v. City of St. Petersburg*, 183 So. 304).

Claims

Town held not liable on orders issued to poor persons for groceries, etc., where claims had not been audited and allowed by board and certified by clerk, as required by statute (Illinois Appellate Court, Second District: *First Trust & Savings Bank v. Town of Ganeer*, 16 N. E. 2d, 806).

Condemnation Proceedings

Order for demolition of houses as being in dangerous condition held invalid for want of notice to owner of hearing before order was made (New Jersey Supreme Court: *Vanderhoven v. City of Rahway*, 1 Atl. 2d, 303).

Contracts

Contractor held entitled to abandon contract to construct water-supply tunnel and entitled to recover value of work done, on grounds that the contract was taken under misrepresentations as to the nature of subsoil conditions, and that because of such misrepresentations the work was rendered unexpectedly difficult (United States District Court, Eastern District of Pennsylvania: *Rae v. City of Reading*, 21 Fed. Supp. 566).

Licenses

Beer retailer licensed by state and city held entitled to continue business although refused license by county (Idaho Supreme Court: *State v. Robbins*, 81 Pac. 2d, 1078).

Municipal Funds

Charter provision requiring water-works "funds" to be used exclusively for water-supply purposes held limited to money, convertible securities, etc., and not to apply to land held by water commissioners and sought to be used as an armory site (Illinois Supreme Court: *People v. Kelly*, 16 N. E. 2d, 693).

Municipal Organization

Irregularities in organizing town held not available to defeat liability on bonds, where existence of town had been recognized for several years (United States Circuit Court of Appeals, Fifth Circuit: *United States v. Heyward*, 98 Fed. 2d, 433).

Municipal Powers

City held empowered to extract oil from tidelands owned by it, in manner not impeding use of harbor (California Supreme Court: *City of Long Beach v. Marshall*, 82 Pac. 2d, 362).

Municipal Utilities

Power company held not entitled to enjoin city from establishing electric plant on grounds that company was furnishing adequate and satisfactory service, that proposal to establish plant was not fairly and sufficiently submitted to electors, etc. (Iowa Supreme Court: *Interstate Power Co. v. Forest City*, 281 N. W. 207). See, also, *Lahn v. Incorporated Town of Primghar*, 281 N. W. 214, where same court upheld refusal to enjoin town from issuing electric plant bonds.

Power company held not entitled to enjoin city from acquiring system to distribute current purchased from TVA, although the competition might destroy the company's business (United States Circuit Court of Appeals, Sixth Circuit: *West Tennessee Power & Light Co. v. City of Jackson*, 97 Fed. 2d, 979).

City enjoined from interfering with company's possession of municipal gas plant under lease wrongfully attempted by Mayor to be terminated (Pennsylvania Supreme Court: *Philadelphia Gas Works Co. v. City of Philadelphia*, 1 Atl. 2d, 156).

Official Pay

City, having paid salary to one officially certified as having been elected to office, held not liable to another for salary for same period on his successfully contesting the incumbent's election (Illinois Supreme Court: *McKinley v. City of Chicago*, 16 N. E. 2d, 727). To same general effect, see *Hart v. Borough of Hawthorne*, 1 Atl. 2d, 416, decided by New Jersey Court of Errors and Appeals.

Official Tenure

Street Commissioner whose term was shortened by legislative act held not entitled to salary for unexpired portion of term for which he was elected (Louisiana Supreme Court: *Higginbotham v. City of Baton Rouge*, 183 So. 168).

Pensions

Under statute, town held empowered to provide pensions for widows of firemen in general but not a special pension for one particular widow only (New Jersey Supreme Court: *De Vincenzo v. Town of West New York*, 1 Atl. 2d, 36).

Under New York City charter provision fireman held not entitled to pension on account of disability arising from diseased condition not shown to be related to injuries sustained in line of duty (New York Court of Appeals: *Cosgrove v. Carey*, 16 N. E. 2d, 351).

Police Measures

City held without power to restrict fishing in waters within city limits (Florida Supreme Court: *Nash v. Vaughn*, 182 So. 827).

Private Communities

An association of owners of private property comprising a community held empowered to adopt and enforce regulation forbidding picketing in streets of community (New York Supreme Court, Special Term: *Sea Gate Assn. v. Sea Gate Tenants Assn.*, 6 N. Y. Supp. 2d, 387).

Public Health

San Francisco charter provision for health service system for municipal employees upheld (California Supreme Court: *Butterworth v. Boyd*, 82 Pac. 2d, 434).

Purchases

City held to have implied power to purchase overcoats for firemen as proper equipment for fire department (South Dakota Supreme Court: *Calmenson Clothing Co. v. Kruger*, 281 N. W. 203).

Sewers

Where school district constructed sewer in street with municipal permission, purchaser of property from district held not entitled to prevent abutter upon street from connecting with sewer (Idaho Supreme Court: *Cornwall v. Garrison*, 81 Pac. 2d, 1094).

Slum Clearance

Provisions of Florida act for slum clearance through local authorities under loans from United States Housing Authority upheld (Florida Supreme Court: *Marvin v. Housing Authority of Jacksonville*, 183 So. 145).

Streets

New street improvement district held validly created to correct mistakes in improperly including certain lots and in excluding others in creating original district (Arkansas Supreme Court: *Christian v. Forrest City Street Improvement District No. 7*, 118 S. W. 2d, 858).

City held not empowered to authorize laying of private railroad siding in street, although street was wide and in industrial zone (New Jersey Supreme Court: *Hamilton Lumber & Manufacturing Co. v. City of Paterson*, 1 Atl. 2d, 311).

Taxation

City, purchasing and foreclosing tax sale certificate, held to do so as trustee for state and governmental subdivisions entitled to participate in tax proceeds (Nebraska Supreme Court: *City of McCook v. Johnson*, 281 N. W. 69).

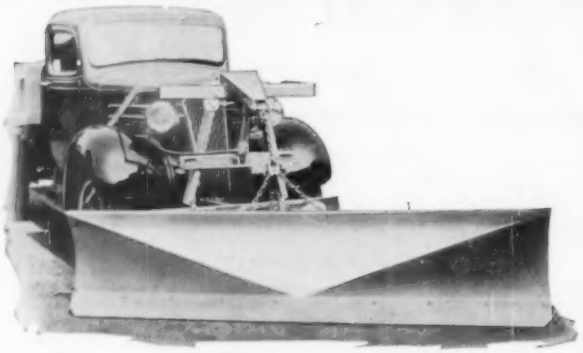
City held not empowered to levy tax exceeding budget requirements although tax is within maximum rate permitted by charter to be levied (California Supreme Court: *Southern Service Co. v. Los Angeles County*, 82 Pac. 2d, 397).

Utility Rates

Electric rates affording 7 per cent return on rate basis upheld, although franchise granted in boom days provided for 10 per cent (United States Circuit Court of Appeals, Fifth Circuit: *Florida Power & Light Co. v. City of Miami*, 98 Fed. 2d, 180).

Water Supply

In valuing water rights appropriated by city to supply water to consumers, demand for such water held properly considered. Owner of water rights held not entitled to enjoin city from continued appropriation of water, where he had permitted the appropriation for several years (Utah Supreme Court: *Shurtleff v. Salt Lake City*, 82 Pac. 2d, 561).



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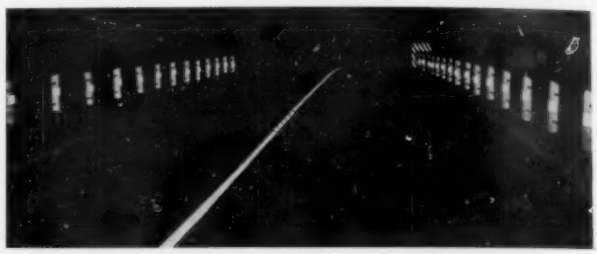

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Municipal and Civic Publications

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Municipalities and the Law

Municipalities and the Law in Action.—Edited by John A. McIntire, Executive Director, and Charles S. Rhyne, Attorney, National Institute of Municipal Law Officers. Published by the Institute, 730 Jackson Place, Washington, D. C. 1938. vi + 222 pp., including index. $3.00.

"Municipalities and the Law in Action," the proceedings of the midyear meeting of the National Institute of Municipal Law Officers, is the first volume of a projected series of volumes to be issued under this same title, reporting the meetings of the Institute. Its significance comes not only from growth in urban population but from the broadening and increasingly important field of governmental activities, which bring in their trails new legal problems. The book covers the legal aspects of a wide variety of subjects: taxation, new sources of revenue, wages for city employees, ordinances and ordinance enforcement, drunken drivers, housing and slum clearance, relief, public utilities, tort liability and municipal contracts. Of particular interest is a talk entitled "The Cradle of American Democracy—The Municipality." Included also are a list of officers of the Institute, of its Washington staff, and a directory of chief law officers of all cities over 30,000 in population.

Water Supply

Water Supply and Purification.—By W. A. Hardenbergh, M. Am. Soc. C.E., Lt. Col., Sanitary Reserve, U. S. A.—International Textbook Co., Scranton, Pa. 1938. 458 pp., including Appendix and Index. $4.00 *from* THE AMERICAN CITY.

This book is designed to aid the student in the application of engineering principles to waterworks design; to familiarize him with the methods of examining, purifying and softening water. Special emphasis is placed on the public health phases of water supplies, and the points in the design that influence or insure safe operation have been stressed.

Airports

Published by the American Society of Planning Officials and the American Municipal Association is an interesting and significant bulletin on "The Airport Dilemma." It describes the spectacular growth of aviation in this country; the amount of money that has been and is being spent on the construction and operation of municipal airports. A section of particular interest to municipalities is that dealing with the problem of municipal airports and the "municipal interest in aviation": What are the uses for airports? How can they be paid for? Does a city profit by having an airport?

Part II deals with the "broad planning aspects of an airport program," in its national, state and local phases. Included in the bulletin are resolutions enacted at the National Airport Conference in Washington in December, 1937. 47 pp. $1. (Apply to Public Administration Service, 1313 E. 60th St., Chicago, Ill.)

Police

"Recruitment of Policemen," prepared by the International Association of Chiefs of Police, is intended to serve as a "stimulus to police departments everywhere in the improvement of their recruiting methods." Contents are as follows: Job Analysis and Classification—educational and age qualifications, physical measurements, residence; Search for Candidates; Examination of Applicants—written, medical and physical, and oral tests, character investigation; Appointment to the Force—certification of eligibles, probationary period, training; Promotions; Value of Examination Program. Illustrations of suggested forms are also given: job specification for patrolmen, notice of examination, application blank, medical standards for patrolmen, report of medical examiner, rating form for oral interviews, schedule for securing character data on applicants. 28 pp. 50c. (Apply to International Assn. of Chiefs of Police, 1313 E. 60th St., Chicago, Ill.)

The Debt Problem

Debts and Recovery—A Study of Changes in the Internal Debt Structure from 1929 to 1937 and a Program for the Future.—The Factual Findings by Albert Gailord Hart, and The Program by the Committee on Debt Adjustment. The Twentieth Century Fund, 330 W. 42nd St., New York. 1938. xxvi + 366 pp., including index. $2.75.

This timely book, dealing with one of the nation's most vital problems, is a sequel to "The Internal Debts of the United States," issued during the depression by the Twentieth Century Fund. The first part of the book, The Factual Findings, analyzes the changes in debt structure since 1929, and their effect on debts of individuals, corporations and government. The second part, The Program, prepared by a committee of authorities eminent in the field and of differing interests and points of view, suggests "policies by which debts can be more easily adjusted in the future to the ups and downs of the business cycle," for the benefit of both debtor and creditor. The book gives an analysis of policies adopted and credit agencies and institutions established to deal with the debt problem during the depression. Recommendations by the committee include, among others, a consideration of the problems of tax-exempt securities, the mortgage moratoria, "legal" investments of life insurance companies and savings banks.

Zoning

Among the many cities in the country which have an active movement for revising their zoning ordinances is Worcester, Mass. Framed in 1924 on the assumption of a constantly continuing growth in population, and practically unchanged since then, Worcester's zoning ordinance makes provision for several times the growth of population and building development that is likely to occur.

The "Report of the Worcester City Planning Board" is particularly concerned with an analysis of the zoning ordinance and zone map, and recommendations for its revision. Separate sections deal with zoning for industry, business and residences. Maps show present and proposed revised zoning. Included also is a list of "Surveys and Projects Necessary to Provide a Foundation for Planning in Worcester," and charts showing trends in population growth, amount of building and industrial employment. 24 pp. (Apply to H. L. Robinson, Worcester City Planning Board, 22 Elm St., Worcester, Mass.)

Sewerage

The American Public Works Association has issued another section, on "Sewers," to be added to its set of "Standard Specifications for Public Works Construction." The material covers specifications for (I) Materials and (II) Construction of Sewers. The Standard Specifications are intended as guides to local engineers, to be modified to suit local conditions. Sections issued previously cover: Subgrades and Foundations for Pavements, Sidewalks and Curbs, Brick Pavements, Stone Block Pavements, Bituminous Pavements. 69 loose-leaf pp. Free to members; $1 to others. (Apply to American Public Works Assn., 1313 E. 60th St., Chicago, Ill.)

Milk Ordinance

A reprint has been made of the "Mayor Kelly Milk Ordinance," passed by the Chicago City Council, January 4, 1935, and of the "Rules and Regulations of the Chicago Board of Health (Provisions for dairy farms only)," adopted January 8, 1935. The material covers standards and requirements for milk and milk products in relation to the following subjects: sale of adulterated and misbranded milk or milk products; permit to sell—revocation of permit—hearing; labeling and placarding; inspection of dairy farms and milk plants; examination of samples; kinds of milk—requirements; products shipped from beyond limits; notification of disease; suspicion of infection. 79 pp. 50c. (Apply to Home Study Circle, P. O. Box Four, Hubbard Woods, Ill.)

Depreciation

Report on Depreciation.—By a Special Committee of the National Association of Railroad and Utilities Commissions. Published by the State Law Reporting Co., 30 Vesey Street, New York. 85 pp., including tables and charts. $1.50.

In addition to the discussion of depreciation principles summarized in a ten-point program, this report contains a comprehensive analysis of the results of accounting for depreciation under both the straight-line and the sinking-fund methods. In these analyses it is demonstrated that over the entire life of property the straight-line method, when used both for annual depreciation and total depreciation purposes, requires a smaller amount for depreciation and return than does the sinking-fund method. The report explains methods of estimating depreciation rates, including the forecast, turnover, and actuarial methods.

Municipal Reports

"Informing the busy citizen as to the return in service he gets from his tax dollar" is the object of the municipal report, according to the bulletin "Specifications for the Annual Municipal Report," which outlines suggestions on how best to accomplish this object, for officials preparing their annual reports to the taxpayer. The type of format and make-up which will help in "putting across" the material presented is recommended. An outline is given of suggested topics to be covered in reporting the following municipal activities: finance, personnel, planning, health, recreation, welfare, housing, police, fire, public works, education, library. In most cases, measurement units which will prove most effective in indicating the significance of each particular activity are listed. 16 multigraphed pp. 50c. (Apply to The International City Managers' Assn., 1313 E. 60th St., Chicago, Ill.)

Housing in New York

"Let's Look at Housing" gives to the New York citizen, in a few, brief, effectively worded and illustrated pages, a bird's-eye view of the tremendous housing problem of his city, and what can and must be done to remedy it. Issued by the Citizens' Housing Council of New York, this booklet is condensed from the summary report of the Council's committees of experts representing various points of view of the housing problem.

The Council estimates that there are more than half a million families in New York City living in 58,000 slum tenements. To replace these tenements, 84,000 new dwellings must be built every year for a period of 20 years. The booklet recommends the type of houses that should be built; emphasizes the importance of location, and relation to the city plan, for new housing projects; points out the importance of good management of housing projects; discusses the problem of rehousing slum dwellers; and recommends tentative rehabilitation of slums in certain areas, until they can be replaced by new housing; points out needed revisions in present housing laws.

Unlike many similar reports, this one presents a definite, positive housing program, rather than a dismal, depressing description of slums which leaves the reader hopeless. 10 pp. 5c. (Apply to the Citizens' Housing Council, 470 Fourth Ave. New York.)

Parking Meters

Now that the parking meter has gained general acceptance as the best means yet devised for regulating curb parking, the need for keeping up on the methods of operation of the various types of meters becomes evident. Officials of any city having a downtown parking problem will be interested in a new illustrated folder showing exactly how an automatic parking meter works. Not only are the advantages of automatic parking meters thoroughly discussed in this brochure, but the experiences of four cities (Dallas and El Paso, Texas, St. Petersburg, Fla., and Oklahoma City, Okla.), all of which changed to automatic parking meters, are cited. (Apply to The Dual Parking Meter Co., Commerce Exchange Bldg., Oklahoma City, Okla.)

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Out went a radio call. Seconds later the prowl car arrived. The officers held a man just leaving the building.

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. . . says Chief of White Plains Police

To cover the 10½ square miles of highly urbanized White Plains, N. Y., the city chose a Western Electric 25 watt ultra-high frequency transmitter—equipped 8 cars with receivers and transmitters—installed a headquarters receiver.

4 cars serve as prowls, cruising 24 hours a day—1 is assigned to sergeants, 1 to detectives, 1 to a captain, 1 to the Chief.

Chief Miller says this 2-way radio system is the best weapon on the force. It enables headquarters to keep a perfect check on all cars at all times—enables patrols to report instantly and to call for additional police, doctors or ambulances without loss of an instant and without the officer leaving the scene.

The location of any disturbance in White Plains can be reached by a radio car in a matter of seconds, and—says Chief Miller—that often makes the difference between an argument and an act of violence. He credits radio with *preventing* many crimes, as well as with increasing the speed and number of arrests.

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POLICE RADIO TELEPHONE EQUIPMENT

Safety

Let Them Live.—By Stewart H. Holbrook. The Macmillan Co., New York. 1938. *178 pp. including index.* $1.50 *from* THE AMERICAN CITY.

"Let Them Live" tells in dramatic, narrative form the history of the accident-prevention and safety movement in this country. The author describes vividly accidents and deaths that have occurred in the past from unsafe conditions in mills, mines and steel plants; from forest and theater fires; on sinking ships and on railroads and highways. An account is given of the strides that have been made in preventing accidents and deaths, of the organizations and many of the personalities that have taken part in this movement. At the same time, an idea is given of the large task which still remains to be done in this field.

Of particular interest is a chapter describing Milwaukee's intensive drive for safety, which has resulted in its remarkable safety record. Another describes the new career in traffic safety, for which training is now offered at Yale and Northwestern Universities.

Government

Outlined in "The Summary Report of the Philadelphia Charter Commission" are the changes which the Commission proposes for the reorganization of Philadelphia's governmental set-up. The Commission recommends a council-manager form of government; with a City-County Council elected by proportional representation on a non-partisan ballot, and reduced from 22 to 11 members. Other suggested reforms include: reorganization of the present taxation and budgeting systems; reorganization of city departments; extension of civil service, and revision of the salary system; establishment of a powerful planning board.

Objections to the present form of government and advantages to be gained from the proposed progressive changes are outlined. The necessity of the proposed charter revision is emphasized in view of the financial crisis which Philadelphia is now facing. 39 pp. (Apply to Philadelphia Charter Commission, Administration Building, Philadelphia, Pa.)

Economic Problems

Practical Problems in Economics.—By Broadus Mitchell, Johns Hopkins University, and Louise Pearson Mitchell. Henry Holt and Co., New York. 1938. *vii + 596 pp. including index.* $3.50 *from* THE AMERICAN CITY.

In this volume the authors have intentionally presented, not a source book of material on economic problems, but a digest of information on all sides of these questions, including conclusions reached by the authors. They have been particularly interested in analyzing, in relation to each of the problems discussed, the trend away from unrestricted competition, and toward cooperation and control; how much further and at what pace it will continue.

Chapters deal with the following phases of the United States contemporary economic scene: the consumer, cooperatives, housing, population, unemployment, labor, agriculture and farm tenancy, transportation, utilities, public revenue, the Soviet and Fascist economic systems. Clear, orderly style and presentation make this book excellent for use as a textbook.

Home Financing

The August issue of *Law and Contemporary Problems* is devoted to a discussion of the problems of "Home Financing," with particular regard to the legal phases of these problems, by authorities in the field. The articles discuss deficiencies in the present system of home financing and suggest improved methods. The first three articles discuss recent developments due to the depression: Federal Legislation Affecting Private Home Financing; Shifts in the Sources of Funds for Home Financing; State Legislative Relief for the Mortgage Debtor. Other titles are: The Effects of Defective Mortgage Laws on Home Financing; The New Proposal for a Uniform Real Estate Mortgage Act; The Need for Special, Simplified Mechanics' Lien Acts Applicable to Home Construction; Large-Scale Rental Developments as an Alternative to Home Ownership; The Financing of Large-Scale Rental Housing; Adjusting the Mortgagors' Obligation to Economic Cycles. 626 pp. 75c. (Apply to Law and Contemporary Problems, Duke Station, Durham, N. C.)

Planning

National Conference on Planning—Proceedings of the Conference Held at Minneapolis, Minn., June 20-22, 1938.—American Society of Planning Officials, 1313 *E. 60th St., Chicago, Ill.* 1938. *v + 210 pp., including index.* $2.00.

Organizations participating in the National Conference on Planning this year were the American City Planning Institute, American Planning and Civic Association, and the American Society of Planning Officials. The Proceedings contain the usual closely packed wealth of experience and ideas of experts from all over the country, on the various phases of the constantly expanding field of planning. Summaries of discussions and papers given cover the following subjects: need for planning; value of planning to public officials; planning housing and traffic; county, metropolitan, regional, state and national planning; urban land policies; rural and agricultural zoning; trends in planning law, legislation, and litigation; administration of a planning office; education for planning; migration and economic opportunity; capital budgets and improvement programs. Included also are a list of persons registered at the Conference, and the officers and directors of the American Society of Planning Officials.

Other Reports Received

BERKELEY, CALIF.—Annual Report, City Manager, Year Ending June 30, 1938. 48 pp.

BRONXVILLE, N. Y.—Report, Board of Trustees, 1937-1938. 26 pp.

DALLAS, TEX.—Summary of General Budget for Fiscal Year 1938-1939. City Manager. Aug. 15, 1938. 48 mimeographed pp.

PALO ALTO, CALIF.—Annual Report, Year Ending June 30, 1938. 131 pp.

PITTSBURGH, PA.—"A Housing Survey of Beneficiaries of Old Age Assistance Living on the North Side, Pittsburgh," by Esther C. Shuster and Richard O'Connor. Federation of Social Agencies of Pittsburgh and Allegheny County. 1938. 25c. 28 mimeographed pp.

Conventions -- When and Where

Meeting is annual convention unless otherwise designated

DECEMBER 8-11.—WASHINGTON, D. C.
American Public Welfare Association. (Wardman Park Hotel.) Dir., Fred K. Hoehler, 1313 E. 60th St., Chicago, Ill.

DECEMBER 28-30.—DETROIT, MICH.
Tax Policy League. Exec. Sec., Dr. Mabel L. Walker, 309 E. 34th St., New York.

DECEMBER 29.—NEW YORK CITY.
American Water Works Association—New York Section. (Pennsylvania Hotel.) Sec.-Treas., R. K. Blanchard, 50 W. 50th St., New York.

JANUARY 16-20, 1939.—STILLWATER, OKLA.
Oklahoma Water and Sewage Conference. (Oklahoma A. & M. College.) Sec.-Treas., H. J. Darcy, State Health Dept., Oklahoma City, Okla.

JANUARY 18-20.—NEW YORK CITY.
American Society of Civil Engineers. Sec., George T. Seabury, 33 W. 39th St., New York.

JANUARY 19-21.—NEW YORK CITY.
New York State Sewage Works Association. (Hotel McAlpin.) Sec.-Treas., A. S. Bedell, State Dept. of Health, Albany, N. Y.

JANUARY 20-21.—WASHINGTON, D. C.
National Public Housing Conference. Sec., Miss Helen Alfred, 112 E. 19th St., New York.

JANUARY 23-27.—LAFAYETTE, IND.
Purdue Road School. (Purdue Univ.) Address: Ben H. Petty, Professor of Highway Engineering, Purdue Univ., Lafayette, Ind.

JANUARY 27-28.—WASHINGTON, D. C.
American City Planning Institute. (Hotel Washington.) Exec. Sec., Harold W. Lautner, Hunt Hall, Cambridge, Mass.

FEBRUARY 15-17.—NEW YORK CITY.
Association of Highway Officials of North Atlantic States. (Hotel Pennsylvania.) Sec.-Treas., A. L. Grover, State Highway Dept., Trenton, N. J.

FEBRUARY 15-17.—ANN ARBOR, MICH.
Conference on Highway Engineering. (Michigan Union.) Sec., R. E. Morrison, Univ. of Michigan, Ann Arbor, Mich.

FEBRUARY 21-24.—WICHITA, KANS.
Southwest Road Show and School. Mgr., F. G. Wieland, 225 S. Water St., Wichita, Kans.

FEBRUARY 25-MARCH 2.—CLEVELAND, OHIO.
American Association of School Administrators. Sec., Willard E. Givens, 1201 16th St., N. W., Washington, D. C.

FEBRUARY 27, WEEK OF.—LOS ANGELES, CALIF.
The Asphalt Institute. (Biltmore Hotel.) M'ng Dir., J. E. Pennybacker, 801 Second Ave., New York.

MARCH 1-3.—NEW YORK CITY.
American Concrete Institute. (Roosevelt Hotel.) Sec., Harvey Whipple, 407 New Center Bldg., Detroit, Mich.

MARCH 7-10.—SAN FRANCISCO, CALIF.
American Road Builders' Association. Engr.-Dir., Charles M. Upham, 952 Nat'l Press Bldg., Washington, D. C.

MARCH 9-10.—TRENTON, N. J.
New Jersey Sewage Works Association. (Stacy-Trent Hotel.) Sec., John R. Downes, Bound Brook, N. J.

MARCH 22-24.—ATLANTIC CITY, N. J.
New Jersey Mosquito Extermination Association. (Haddon Hall.) Sec., Thomas J. Headlee, State Experiment Station, New Brunswick, N. J.

APRIL 10-12.—MEMPHIS, TENN.
American Water Works Association—Kentucky-Tennessee Section. Sec.-Treas., Howard D. Schmidt, 420 6th Ave., N., Nashville, Tenn.

APRIL 12-14.—TORONTO, ONT.
American Water Works Association—Canadian Section. (Royal York Hotel.) Sec.-Treas., Dr. A. E. Berry, Dept. of Health, Parliament Bldg., Toronto, Ont.

APRIL 25-26.—INDIANAPOLIS, IND.
American Water Works Association—Indiana Section. Sec., J. A. Bruhn, Box 855, Indianapolis, Ind.

APRIL 27-28.—DAYTON, OHIO.
American Water Works Association—Ohio Section. Sec., T. R. Lathrop, State Dept. of Health, Columbus, Ohio.

MAY 8-13.—CHICAGO, ILL.
National Fire Protection Association. M'ng Dir., Franklin H. Wentworth, 60 Batterymarch St., Boston, Mass.

MAY 15-17.—BOSTON, MASS.
National Conference on Planning. (Hotel Statler.) Joint annual conference of American Society of Planning Officials, American Planning and Civic Association, National Economic and Social Planning Association and American City Planning Institute. Conference Dir., Miss Elisabeth H. Herlihy, Room 24, State House, Boston, Mass.

JUNE 11-15.—ATLANTIC CITY, N. J.
American Water Works Association. (Hotels Ambassador and Chelsea.) Sec., Harry E. Jordan, 22 E. 40th St., New York.

JUNE 20-22.—BUFFALO, N. Y.
American Public Welfare Association. Dir., Fred K. Hoehler, 1313 East 60th Street, Chicago, Illinois.

IT'S SPEED YOU NEED FOR ICE CONTROL

CALCIUM CHLORIDE

GIVES *fastest results*

Above — Ice strikes without warning, demands emergency action! With calcium chloride method of ice control, you are always ready for instant action.

Extreme left — Dangerous driving! Every minute counts when ice sheathes roads with treacherous surfaces.

Left — Calcium chloride treated grits, always ready, spread smoothly, swiftly, form safe tractive surface speedily.

THE first hour after highway ice is treated—that's the test of ice control methods! Is it immediately effective, or do the grits take their own sweet time to embed themselves into the surface of the ice?

With calcium chloride treated grits, embedment starts at once. The melting action of calcium chloride is *fast*, faster than any other chemical used for similar ice control treatment. At any temperature from freezing down to 50° below, calcium chloride melts its own weight of ice in less time.

The quickly formed safe surface isn't the only advantage of the calcium chloride method of ice control! Stock piles are maintained unfrozen, loose, and ready for loading into spreader trucks without loss of time. Free-flowing abrasive material spreads more evenly, more economically, higher speeds are possible for the spreader truck. With the greater efficiency of calcium chloride treated grits, one load goes farther, skidproofs more road!

The economy of the calcium chloride treatment makes itself apparent in the smaller quantities of abrasives used, in time saved by all-weather effectiveness, in labor saved because calcium chloride keeps stockpiles unfrozen no matter what the temperature.

Get complete information on this better method of ice control. A letter will bring you full data by return mail.

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The Dow Chemical Company, Midland, Michigan
Michigan Alkali Company, 60 E. 42nd St., New York City
Solvay Sales Corporation, 40 Rector St., New York City
The Columbia Alkali Corp., Barberton, Ohio

CALCIUM CHLORIDE
FOR BETTER ICE CONTROL

News and Illustrations

Items of Interest to City, Town and County Officials, and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings

Western Transite Plant Starts Production

With the completion of its new million-dollar plant at Watson, Calif., a suburb of Los Angeles, Johns-Manville, 22 E. 40th Street, New York, has announced that it has started production of Transite asbestos-cement pipe on the Pacific Coast. The new unit, which was placed in operation in the early part of October, is turning out all classifications and sizes of Transite water and sewer pipe, electrical conduit, domestic flue pipe, and industrial vents and stacks.

Transite is composed of asbestos and cement combined under heavy pressure into a dense, homogeneous structure. The asbestos fibers, with tensile strengths running as high as 400,000 pounds per square inch, act in much the same way that steel does in reinforced concrete. They are thoroughly mixed with the cement to provide uniform strength throughout.

The Watson plant raises the number of Johns-Manville manufacturing units located in California to five, thus assuring a direct supply of practically the entire line of J-M building and industrial products for the West Coast market.

Dust-Collection Units for Asphalt Plants

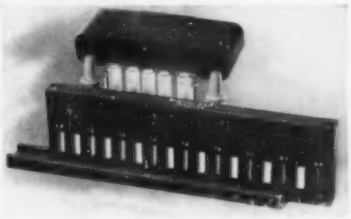
The need for the collection of dust from dryers and asphalt plants and crushers located near residential or industrial communities has long been a matter of discussion. Buell Engineering Co., Inc., 70 Pine Street, New York, has built the Buell dust collector employing the Van Tongeren system. The manufacturer states that it has higher efficiency than ordinary cyclone collectors, maintenance costs are slight, and the operating costs practically nil.

The Buell dust collector harnesses the double eddy currents which are common to all dust collectors of the centrifugal type and which are generally regarded as a detrimental but unavoidable influence. At points where the current tends to concentrate ash in the main body of the cyclone, openings lead to a special outer dust channel. Carried out through the upper openings, then back through lower ones, the ash encounters the lower branch of the double eddy current and is borne on toward the ash outlet at the bottom.

There are two models, which are identical in principle. They differ only in certain details of construction. Model 130 is somewhat simpler, requires no inlet control damper, and handles wide fluctuations of load with uniform efficiency. It is also smaller than Model 150 units of equal capacity. This latter has a higher coefficient of extraction and is to be preferred whenever the value of the dust justifies a somewhat larger initial investment for its collection. The Buell Engineering Co. has issued a new 8-page illustrated bulletin describing Buell dust collectors in detail. Copies may be obtained by writing direct to the manufacturer and mentioning this item, or to this magazine.

Miles Succeeds Lakin at Standard of Indiana

E. W. Miles, formerly Assistant Manager of the Asphalt and Fuel Oil Department of the Standard Oil Company of Indiana, Chicago, Ill., has been promoted to Manager, succeeding C. C. Lakin, who has retired after almost 24 years of service. A. T. Hague, Sales Engineer in the Asphalt and Fuel Oil Department, has been promoted to Assistant Manager to succeed Mr. Miles.



THE NEW TAYLOR SLIDE COMPARATOR

New Slide Comparator for pH Control

A new Slide Comparator for the colorimetric determination of pH, chlorine and phosphates has been developed by W. A. Taylor & Co., 872 Linden Avenue, Baltimore, Md. The new outfit is molded entirely from plastic. Radical changes in design have resulted in marked improvement in appearance, durability and ease of handling. The weight has also been considerably reduced. All pH, chlorine and phosphate values, as well as the indicator names, are engraved in white directly on the plastic slides. Improved catches are used to hold the top on the base, and all metal parts are rustproof. The whole outfit, including the slide, is 10 inches long, 2⅛ inches wide and 4 inches high, and weighs only 1½ pounds.

The new Comparator consists of a slide and a base. Each slide contains nine color standards alternating with ampoules of distilled water. All color standards are guaranteed by the manufacturer to maintain their accuracy for a period of five years.

The base contains two vials of indicator solution, with 0.5-cc pipettes, five 5-cc test tubes, and a piece of etched glass in a special compartment. Determinations are made by filling three of the test tubes with the test sample, adding 0.5-cc of indicator solution to the middle one, placing the slide on the base and moving it back and forth until the test sample matches one of the color standards. The pH, chlorine or phosphate value is then read off directly from the values on the slide. One base can be used with any number of color standard slides. Full information on these outfits can be obtained direct from the manufacturer or through THE AMERICAN CITY.

Carbide Floodlights Followed Hurricane

The National Carbide Corporation, Lincoln Building, New York, manufacturer of National portable carbide lights, has reported the great demand for its X-100 V-G 8000-candlepower floodlights immediately following the hurricane, particularly throughout the New England states. In one instance the Boston District arranged to transport fifty of these floodlights by airplane from Williamsport, Pa., to Providence, R. I. The lights were received promptly and quickly put into use, floodlighting large areas during the time when the city was without electric lights.

Galvin to LeTourneau as General Sales Manager

E. R. Galvin has resigned his position as General Sales Manager of Caterpillar Tractor Co. to become associated with R. G. LeTourneau, Inc., Peoria, Ill., in a like capacity. Because LeTourneau business for the past five years has increased more than 1,400 per cent and promises to continue the upward trend, owing to new equipment developments and the resulting new markets, it was felt by R. G. LeTourneau that a man of Mr. Galvin's caliber was needed to coordinate all sales efforts.

Denn M. Burgess, Domestic Sales Manager, was promoted to General Manager of the LeTourneau organization, and Mr. Galvin was sought for Sales Manager. Mr. Galvin's early public school education in Michigan and Wisconsin was followed by a business course in Duluth, Minn., and in 1906 he entered the employ of Du Pont, working in the office. Later, he went out as one of their demonstrators of explosives, returning to the main office in Wilmington, Del., in 1919 as Director of Sales. In 1925 he entered the tractor field as General Sales Manager of the Cleveland Tractor Co. and in 1927 joined the Caterpillar organization, traveling for them as a general representative. After this he became Eastern Sales Manager and then, a year and a half ago, the first General Sales Manager of the Caterpillar Tractor Co.

Burroughs

FOR MUNICIPAL ACCOUNTING

Burroughs has made an intensive study of municipal accounting, and has developed many new machines and features affording a wider range from which to select the method best suited to the requirements of all municipal departments. The Burroughs representative is fully qualified to discuss these new developments with you, and to show how other municipalities are using them to advantage. For complete information, call the nearest Burroughs office, or fill in and mail the coupon below.

Governmental Division
Burroughs Adding Machine Company
6992 Second Blvd., Detroit, Michigan

I have checked below, the subjects on which I would like complete information.

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐

Name_____

Title_____

Address_____

A few of the accounting jobs on which Burroughs can help you

1. BUDGET CONTROL AND FUND ACCOUNTING
Burroughs provides methods for preparing prompt reports and statistical data on comparable forms so that officials can make quick checks against income and expense estimates and reports of previous periods.

2. TAX ACCOUNTING
On current or delinquent taxes, local improvements, billing or collecting, tax receipting, balancing tax collections—or any other phase of tax accounting—Burroughs offers many plans.

3. STORES RECORDS
Burroughs can assist you to provide a daily control of stocks on hand, available and reserved, with perpetual balances of quantity and value, and a complete analysis of materials charged to various departments.

4. PAYROLL AND CHECK WRITING
Burroughs combines all payroll records into one writing, providing a record of each employee's earnings, departmental payroll costs, and classified personnel statistics.

5. PURCHASE AND PAYMENT RECORDS
Burroughs plans provide information as to amounts due vendors, purchase orders outstanding, and records of purchases by commodity classification and sources.

6. TAX RECEIPTING AND CASH CONTROL
Burroughs offers a machine that prints on the receipt the serial number, tax bill or property description number, date, amount of payment and cashier identification—affording maximum protection to clerk, collector and city.

MAIL THIS COUPON FOR FULL DETAILS ON ANY OR ALL OF THE ABOVE SUBJECTS

During December we hope you will remember to mention THE AMERICAN CITY.

ONE OF SAM E. FINLEY'S DISTRIBUTORS

Highway Contractor Builds Own Distributor

Sam E. Finley, 292 North Avenue, N. W., Atlanta, Ga., well-known highway contractor in the South, building Finley Method non-skid waterproof pavements and plant mix jobs as well, builds his own distributors, using 1,000-gallon steel tanks made by R. D. Cole Mfg. Co., Newnan, Ga., and brass mounted. The accompanying illustration shows one of the Finley distributors mounted on a Mack truck with Goodyear tires and using a LeRoi engine for the operation of the asphalt pump delivering to the spray bars.

Variable Capacity Deep-Well Turbines

Each deep-well turbine pump made by Bingham Pump Co., Portland, Ore., is individually designed to perform a particular service. The impellers and pump bowls are made in an unusually wide range of capacities and heads for each size well. The head and capacity requirements for any size well can therefore be met to give the maximum efficiency for any pumping condition. The specially constructed Unit-Drive discharge head will accommodate electric motors of different ratings, a Bingham belt drive assembly, or a Bingham right-angle drive, without removing the discharge head from the column. The manufacturer reports that, owing to the streamlining of the right-angle drives and belt drives, a change in type of drive does not alter the compact lines of the upper assembly.

Positive lubrication without waste or trouble is handled by a self-regulating, gravity oiling system that feeds only when the pump is operating. An automatic solenoid oiler controls the starting and stopping of the oil flow. A constant flow of oil from a large dust-tight reservoir is maintained through a sight feed valve. With this system the shaft tube is properly supplied with oil for all line-shaft bearings and the top pump bearing. The discharge water is kept free from contamination by a specially designed deep stuffing-box and relief ports in the top bearing housing.

The shaft and the shaft tube with its line-shaft bearings are designed to eliminate vibration and shaft whipping. Spider guides are used for the lateral support of the shaft tube; thus any misalignment that might occur in the discharge column from outside sources cannot be transmitted to the shaft tube or the shaft. As a further precaution, the Bingham Pump Co. has designed its pumps so that the line shafts are held in rigid alignment by accurately machined butt joints between the shaft sections and by extra-long threaded couplings.

The complete line of Bingham deep-well turbine pumps, as well as charts and specifications, are covered in Bulletin No. 51, which may be secured from the manufacturer by mentioning THE AMERICAN CITY, or through this publication.

Police and Harbor Boats with Sturdy Engines

The constant and hard service given police boats necessitates regular and frequent overhauling and replacement of engine parts. Not only is this expensive, but it lowers the efficiency of the patrol when boats are out of commission for any length of time. For this reason, any city maintaining a river or harbor patrol will be interested in Osco Marined Ford Conversions, made by Osco Motors Corporation, Rosehill and Clearfield Streets, Philadelphia, Pa.

Osco Conversions are Ford engines equipped with special manifolds, reverse gears, pumps, etc., for marine service. They reduce operating costs and make maintenance costs much lower. They can be quickly and easily overhauled or repaired in city shops or garages by the regular mechanics, and all parts are available from local dealers without delay.

Municipalities can use any Ford motors they have on hand, for with an Osco Conversion Kit and a few hours work by a city mechanic any police or fire department can produce a marine motor from the Ford unit. The Osco deluxe catalog is available to readers writing direct to the manufacturer and mentioning THE AMERICAN CITY.

New Gasoline Tractor in Allis-Chalmers Line

A new gasoline tractor, the Model S, which has much the same appearance and performance as the Model S-O controlled ignition oil tractor, has been announced by Allis-Chalmers Manufacturing Co., Milwaukee, Wis. This new tractor develops 77.66 horsepower on the belt, 64.52 horsepower at the drawbar, and 16,732 pounds drawbar pull in first gear. There are five forward speeds, from 1.52 to 6.57 miles per hour, with constant mesh transmission making it possible to shift like a truck while in motion. The tractor is offered in two tread widths, a 62-inch tread model having a shipping weight of 18,200 pounds, and a 74-inch tread machine weighing 19,000 pounds.

A new four-cylinder valve-in-head gasoline engine has been developed for the Model S. It has removable cylinder liners and inserted valve-seats. Tests are reported to show a fuel consumption of only 0.5-pound per brake horsepower hour at 80 to 90 per cent of full load in continuous service.

This new tractor is reported to be particularly suited for snow-plow work, for handling 7- to 8-yard scrapers, 12-foot blade graders, 10-yard wagons, bulldozers, trail builders, winches, logging arches, or other auxiliary equipment requiring a 65-horsepower tractor. A folder describing this new tractor may be obtained by writing the Allis-Chalmers Manufacturing Co., Milwaukee, Wis.

THE NEW MODEL S ALLIS-CHALMERS GASOLINE TRACTOR IN ACTION WITH A 12-FOOT BLADE GRADER

SPOT NEWS OF 1939 GMCs

All-New Trucks . . . All-New Engines . . .
12 NEW DIESEL TRUCKS

GMC announces all-new trucks with entirely new and more powerful valve-in-head GMC engines! — GMC introduces new, larger, light-duty cabs with V-windshields! — GMC presents new, roomier bodies — also new, easy-shift SYNCRO-MESH transmission for medium and heavy-duty models, and—

12 NEW GMC DIESEL TRUCKS! — For the first time, a *full line* of Diesel trucks! For the first time, the smaller, lighter, smoother, *2-cycle* Diesel engines in trucks! For the first time, flexibility equal to gas engine performance and superior lugging ability at slow speeds.

★ **UNEQUALED POWER**
GMC now offers the most power in trucks!

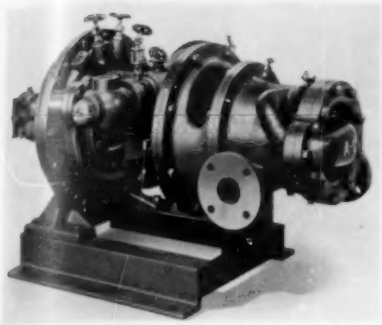
★ **NEW APPEARANCE**
More handsome than trucks have ever been!

★ **NEW C.O.E. MODELS**
(Cab-Over-Engine)
1½ to 8 tons, at lowest C. O. E. prices!

★ **NEW SYNCRO-MESH**
Easy shifting transmission on heavier GMC's!

Our own YMAC Time Payment Plan assures you of lowest available rates

THE TRUCK OF VALUE
GMC
DIESELS TRUCKS TRAILERS



A SSUNIT CLOSE-COUPLED STEAM TURBINE CENTRIFUGAL PUMP

New Steam Turbine Centrifugal Pumps

A new line of close-coupled steam-turbine-driven centrifugal pumps has just been made available by the Centrifugal Pump Division of the Allis-Chalmers Manufacturing Co., Norwood Works, Cincinnati, Ohio. This new line of SSUnit pumps offers the advantages of compactness and accessibility together with operating smoothness and efficiency over a wide range.

The units can be obtained in single- and two-stage pumps, which are at present available for capacities up to 500 gpm for lower heads, and for lower capacities up to 500 feet head. They have cast iron casings with bronze impellers and are bronze-fitted. These centrifugal pumps are applicable to small power plants and to auxiliary pump units in large steam plants. They are particularly suitable in plants where process steam is available or excess steam can be used. In some instances compressed air can be used for driving the turbine.

Iron-Removal Filters for Municipal Service

Since 0.3 ppm of iron will strain fixtures, spoil process quality and spot fabrics in manufacture; since 1.0 ppm of iron will deposit noticeably; and since more than 1.5 ppm of iron is out of the question for any domestic supply, waterworks officials are interested in a filter material which will remove soluble and insoluble iron from raw water. Ferec filter material has been developed by Wm. B. Scaife & Sons Co., Oakmont, Pa., for this service. It is a hard, granular, carefully graded filter material, having an effective size of approximately 0.55-mm. It is produced under strict laboratory control in one grade and is supported within the filter by several layers of silica gravels. Its operation in the filter is to unite the soluble iron catalytically with the oxygen carried in solution by the water, the resultant product being retained within the filter material. The insoluble iron is removed in the common manner by surface filtration. A backwash volume of 15 gallons per square foot per minute is sufficient to release the oxidized iron held within the Ferec filter material and to remove it to waste.

No chemicals are applied to revive this iron-removing filter material. The material does not change in character, for the process is purely catalytic. Dissolved oxygen is necessary for its successful application, and most waters contain the necessary dissolved oxygen. Waters containing reducing gases such as hydrogen sulphide are deficient in dissolved oxygen. Aeration of such waters permits the entrance of dissolved oxygen. Surface waters, such as those from ponds, lakes, rivers and reservoirs, always contain sufficient dissolved oxygen to effect results. Ferec filter material may be used in either pressure or open gravity filters, which are practically always preceded by some type of oxygenator or aerator because of their benefits.

Bulletin No. 299 issued by Wm. B. Scaife & Sons Co., Oakmont, Pa., describes in detail the Ferec iron-removal process, with diagrams and other illustrations. Copies may be secured direct from the manufacturer or through THE AMERICAN CITY.

A Hand-Operated Culvert Cleaner

Since clogged culvert pipes are useless, it is axiomatic that some device should be used for economically and conveniently cleaning them. The Morco culvert cleaner is a practical tool consisting of a formed scoop with a hinged hoe front. It is simple to operate, merely being inserted into the obstructed culvert; a push fills the scoop, and a pull drops the hoe front and removes a scoopful of the embedded material.

This cleaner, made by the Monarch Road Machinery Co., 329 Front Avenue, N.W., Grand Rapids, Mich., is 18 inches long, 6¾ inches wide, and weighs 5 pounds. It is made of 16-gage alloy steel, and the bottom is formed round to fit the general contour of the culvert and is reinforced at the back. The handle, which is not furnished by the manufacturer, consists of sections of ¾-inch pipe coupled and extended to any desired length. The Morco culvert cleaner is designed for use in 10-inch and larger culverts.

Special Features of New 1939 Ford Trucks

The 1939 line of Ford V-8 trucks and commercial cars, equipped with hydraulic brakes and a very wide selection of capacities, gear reduction ratios and power, has been announced by the Ford Motor Co., Detroit, Mich. With 42 body and chassis types, 2 clutches, 5 transmissions, and 8 rear axle ratios, in addition to various wheel and tire sizes which may be chosen, cities may obtain V-8 trucks and commercial cars which are virtually custom-built for their own particular problems.

Three V-8 engines are available with the new 95-hp engine, with a piston displacement of 239 cubic inches heading the list. The improved 85- and 60-hp engines complete the list. A number of refinements have been made in the 85-hp engine to improve its performance and economy of operation.

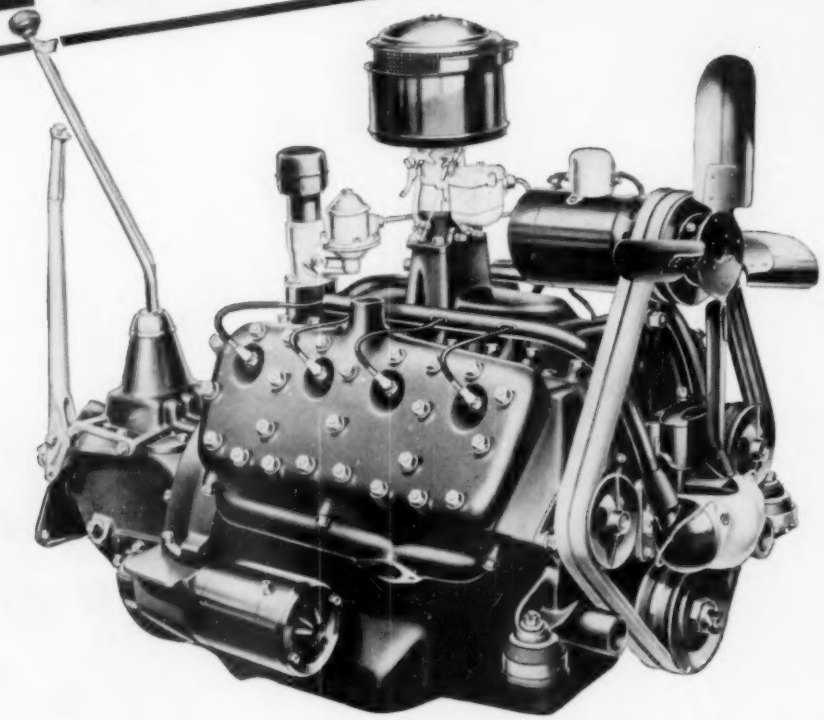
The 112-inch wheelbase chassis has wide applicability through use of the 85- and 60-hp engines, three transmissions and three rear axle ratios. There is a choice between the low reduction 3-speed transmission ordinarily used with the 60-hp engine, and the standard 3-speed transmission ordinarily used with the 85-hp engine. There is also a 4-speed transmission. The chassis is available with panel, stake, platform, pickup, sedan delivery bodies, as a chassis with cab and in two driveaway types.

The 122-inch wheelbase 1-ton truck is available with the 60-hp engine and the 85-hp engine, a heavy-duty 4-speed transmission or either of two special 3-speed transmissions for the 85-hp engine and a 4-speed transmission with the 60-hp engine.

The line of Ford cab-over-engine trucks has been expanded by the addition of a 157-inch wheelbase unit which is available as a chassis with cab and in a driveaway type. Several bodies are also available for the 134- and 101-inch wheelbase cab-over-engine chassis. The rear brakes on the 134- and 157-inch wheelbase and cab-over-engine units have been increased in size.

A NEW 1939 MODEL FORD V-8 CAB-OVER-ENGINE DUMP-TRUCK

LIFE BEGINS AGAIN



This Ford V-8 engine holds an impressive record for service. Behind it are thousands of miles of payload performance . . . countless tough jobs, done with the V-8 dependability and economy for which Ford engines are distinguished.

Now its second life begins. Factory reconditioned, it is ready to give new engine performance with new engine economy. That's the way the Ford Engine and Parts Exchange Plan works. And for you, this unique plan does two things:

IT SAVES YOU TIME

It's much quicker to get an exchange engine or other assembly through a Ford dealer than it is to tie up the truck and wait for the original unit to be repaired or overhauled. In the case of the engine, the Exchange Plan often cuts this time from days to hours.

IT SAVES YOU MONEY

It's a Ford idea that the factory which builds the engine is best equipped to recondition it. Ford uses the same efficient methods, and the same types of precision machines in reconditioning that are used in making the original units. This cuts costs, and you get the savings.

These parts also included in the Ford Exchange Plan

FORD V-8 TRUCKS AND COMMERCIAL CARS

Do you mention THE AMERICAN CITY? Please do.

THIS STYLE X-200 V-G CARBIDE LIGHT DEVELOPS 16,000 CANDLEPOWER

Carbide Flares Light New York City Dumps

The new X-200 V-G carbide light, made by the National Carbide Corporation, Lincoln Building, New York, has two reflectors mounted with swing joints on a cross-arm on a standpipe. This light was developed to meet the requirements of the Department of Sanitation, New York City, for use around city dumps, which in most instances are isolated from electric lines. Each of these units furnishes 16,000 candlepower for six hours and for its capacity is light and very easily handled. They are not easily overturned and do not spill when they are overturned, but will continue to operate satisfactorily if immediately righted and lighted.

New Light Truck and New Diesel Engine

Mack Trucks, Inc., 34th Street and 48th Avenue, Long Island City, N. Y., has announced a new lighter and lower-priced Mack truck, the Model ED, with a gross vehicle weight rating of 8,500 pounds. According to the announcement, the Model ED is a small-scale heavy-duty truck, every part of which is new and designed especially for this particular model.

Offered in a standard wheelbase length of 120½ inches, it accommodates 8-foot body lengths. On the special 136½-inch wheelbase, regular 10-foot bodies can be used. It is powered with a 6-cylinder engine developing 67 hp at 2,800 rpm. Valves are L-head type with exhaust valve seat inserts, and the pistons are nickel cast iron tin-plated. The truck is equipped with four-wheel foot brakes of the internal hydraulic type and many other special features.

Mack is also one of the first truck manufacturers to announce a diesel engine of its own make, a Mack-Lanova. Preliminary models have been on the road in various lines of service for some time, and the present engine represents the culmination of eight years of development. After testing all types of engines, the Lanova energy-cell combustion system was selected because of its high mean effective pressure with a low peak pressure, moderate compression and injection pressure, and the cleanest and smoothest operation.

At present the Mack-Lanova is being produced in a single size, 519 cubic inches displacement, developing 131 hp at 2,000 rpm. It is available at present on three models of trucks and one bus. The engines are built completely in Mack shops, even the cylinder blocks, crankcases and cylinder heads being cast in the Mack foundry.

Numerous innovations have been incorporated in the design, but basically it adheres to the orthodox six-cylinder vertical form and operates on the conventional four-stroke cycle.

Rubber Insulation for Wires and Cables

A new rubber insulation for wires and cables known as Simplex-Anhydrex AA-LL has been announced by Simplex Wire & Cable Co., Cambridge, Mass. To this company's 60 per cent deproteinized rubber insulation known as Anhydrex AA have been added the properties of modern long life or superaging insulations. The result is a combination in one 60 per cent rubber insulation of low water absorption, high electrical qualities, long life and heat resistance. This new insulation is suitable for submarine service, as well as high temperature service. It is also reported to have a longer physical life than any submarine rubber insulation previously available. Tests and specifications are covered in detail in Data Sheet 112, which may be secured direct from the manufacturer by mentioning this magazine.

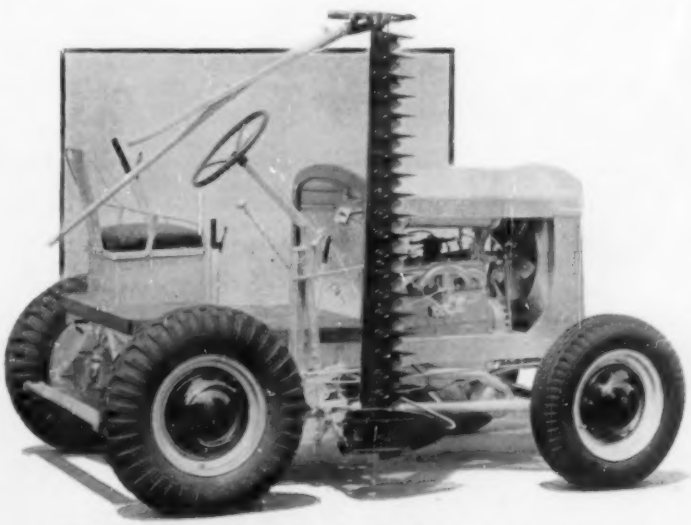
Chapman Made Head of Hunt Laboratories

Wilder A. Chapman has been appointed Manager of Laboratories for Robert W. Hunt Co., engineers, 220 Insurance Exchange, Chicago, Ill. He is a graduate of Tufts College and a member of numerous technical societies. Following an earlier association with the Solvay Process Co., Mr. Chapman was connected with the D. L. & W. Railroad for over six years. He joined Skinner & Sherman, Inc., of Boston in 1924 and was Secretary and Director of that corporation since 1930.

New Golf Tractor with Sickle Bar

A new four-wheeled golf tractor with sickle bar attachment for mowing fairways and the rough, and for pulling a dump-truck, is manufactured by Arps Corporation, New Holstein, Wis. These Blackhawk tractors are available with a 6-cylinder 45-hp motor or with a 60-hp Ford V-8 motor. The tractor is full spring, suspended front and rear, making for easy riding and long life. The speed of operation is from 3 to 15 miles in high gear, with a cutting speed of 5 miles per hour, and a mowing capacity of 3 acres per hour. The wheels are available in either single or dual unit, 7.50 x 16 inches, with power grip tires. The silent internal hardened cut steel gears run in an oil bath. The reinforced heavy-duty dump-bodies have a capacity of 19 cubic feet, or a 1-yard body may be had, with a tail-gate which opens from the top or bottom. The wheel-base of the tractor is 97 inches, and the turning radius 116 inches.

The same company makes 2-wheel pneumatic-tired Blackhawk trailer dump-trucks in 19-cubic-foot, 1-yard and 2-yard capacities. Full details on any of these products may be secured direct from the manufacturer.



THE NEW BLACKHAWK FOUR-WHEELED GOLF TRACTOR WITH SICKLE BAR ATTACHMENT

HARLEY-DAVIDSON SERVI-CAR

FOR ALL-AROUND POLICE SERVICE

MORE and more police departments are using Harley-Davidson Servi-Cars to solve special traffic and enforcement problems. An officer on one of these all-purpose, "three-wheelers" can mark parked cars, check parking meters, and handle many other traffic details better and faster than by any other method.

And no other vehicle can match the Harley-Davidson Servi-Car for night patrol work, testing doors, and checking property — rushing an extra officer to scenes of trouble — escorting parades and funerals—mounting loudspeakers to broadcast safety messages—and many other police assignments day or night.

Radio-equipped Servi-Car used by Fond du Lac, Wis., Police Department.

☆ Phone your Harley-Davidson Dealer to come over and give you full particulars. Write for list of cities using Servi-Cars.

HARLEY-DAVIDSON MOTOR CO.

MILWAUKEE, WISCONSIN

Why not remember to mention THE AMERICAN CITY?

KENNETH G. MERRILL, PRESIDENT, M. B. SKINNER CO., SOUTH BEND, IND.

Water Pipe Repairs Described in Booklet

Permanent repairs for steam, hot or cold water, gas, oil, ammonia or brine lines can be made with a Skinner repair clamp, no matter whether the leak is in a screw joint, bell-and-spigot joint, thread, collar, weld, or a pin-hole or split in the pipe itself. The newest catalog of M. B. Skinner Co., South Bend, Ind., Catalog No. 38A, contains 32 pages of information on the various types of Skinner repair clamps and saddles and valve and bibb reseaters, as well as Skinner pipe benders, and tables and illustrations helpful to the water-works superintendent and operator. Copies of this catalog may be secured direct from the Skinner Co. by mentioning this item, or through THE AMERICAN CITY.

Trade Mark No. 359892, protecting the name "Skinner-Seal" used in connection with Skinner products, has just been issued by the U. S. Patent Office, according to an announcement made by K. G. Merrill, President, M. B. Skinner Co., South Bend, Ind. Although the trade name "Skinner-Seal" is new, the Skinner pipe repair method was introduced in 1898, and Skinner clamps have been widely used since that time.

Performance Tests of Commercial Underdrains

A study of comparative performance tests of various types of commercial underdrains was recently made by Charles M. Allen, Professor of Hydraulic Engineering, Department of Mechanical Engineering, Worcester Polytechnic Institute, Worcester, Mass. The report of this study, which was sponsored by Robinson Clay Product Co., of Akron, Ohio, and Dimick-Mosher Co., of Boston, Mass. is replete with photographs, diagrams, charts and other data showing tests on cast iron skip-pipe, clay skip-pipe, perforated corrugated iron pipe, perforated clay pipe, porous concrete pipe and solid glazed tile.

A four-page folder, containing some of the diagrams and charts as well as some of the findings of this report, has been published by the Robinson Clay Products Co., from which copies of the folder may be secured by mentioning this magazine.

New 36-Inch Main Made with Dresser Couplings

Approximately 12,500 feet of 36-inch inside diameter, 37-inch outside diameter steel water main is being laid by the Metropolitan District Commission, Water Division, Dorchester District, Boston, Mass., in the Southern High-Service Pipe Lines, which begin at a point in Morton Street, Dorchester, and extend easterly to connect with an existing 36-inch cast-iron line. The steel pipe is being furnished with plain ends for joining with Dresser couplings exclusively, of which approximately 375 are being furnished through the Walsh-Holyoke Steam Boiler Works, Holyoke, Mass., manufacturers of the pipe which is being laid by De Matteo Construction Co.

After the pipe laying is completed, it will be tested under a pressure head of 250 feet above the Boston City Base. The work is being done under the direction of S. E. Killam, Chief Engineer, Metropolitan District Commission, Water Division.

Webster Succeeds Bailey for National

George H. Bailey, after forty years of service, has retired as Pacific Coast Manager for National Meter Co., a position he has held for twenty-five years. He was succeeded by Fred D. Webster, who joined the company's forces in 1918 and for the past five years has been assistant to Mr. Bailey. Mr. Webster will be in complete charge of the Pacific Coast with headquarters at San Francisco, and branches at Los Angeles and Seattle.

Dorr Co. to Market Magnetite Filter

The Automatic Magnetite Filter for sewage treatment will in the future be marketed by The Dorr Co., Inc., 570 Lexington Avenue, New York. Exclusive sales rights have been acquired for the United States. Not only will the Magnetite Filter be marketed by the Sanitary Engineering Division of The Dorr Co., but it will also be serviced by the same organization, although The Filtration Equipment Corporation, 10 East 40th St., New York, will manufacture the unit, as in the past.

Meter-Testing Plants for Water Departments

Meter-Testing Plants for $\frac{5}{8}$- to 1-inch meters and for $\frac{5}{8}$- to 2-inch meters, as well as a Portable Test Meter, are made by the National Meter Co., 4207 First Avenue, Brooklyn, N. Y. The No. 1 plant for the $\frac{5}{8}$- to 1-inch meter is designed to suit the needs of the smaller water department and is illustrated. The high-grade scale with agate bearings has a rider beam graduated to show percentage, and poises for percentage of 1 cubic foot and 10 U.S. gallons are included with the equipment. A quick-closing control valve on the outlet side of the testing plant insures quick and accurate shut-off, and orifices are furnished for testing meters on five different flows from full to 1/32-inch. The testing tank is attached to the scale platform by special hinged brackets on which the tank can be tipped and emptied into the drain provided under the testing table, without spilling.

The No. 2 Testing Plant for a wider range of sizes is similar to the smaller plant except that it has a wider range of orifices and a direct drain from the testing tank. The Empire Portable Test Meter consists of a $\frac{5}{8}$-inch Empire meter with a carrying handle, and a special counter equipped with fine gradations to show exact readings. The hands can be re-set to zero after each run without removing the cap. Polished brass connections are provided for the inlet and outlet, and there is a polished brass quick-closing control valve, a set of test discs, and a suitable holder with orifices down to 1/32-inch. The whole can be easily packed in a substantial metal carrying case with lock and handle, which are included in the set.

Complete information on these meter testers is found in Catalog 700 which may be secured direct from National Meter Co., by mentioning this item or through THE AMERICAN CITY.

THE NATIONAL NO. 1 METER-TESTING PLANT

FORMULA FOR BOND-*BURNING* CEREMONIES

Bond-*burning* ceremonies crop out in the news. It's a fine American custom—pleasant comment by civic leaders and happy "asides" among the taxpayers—as the torch is held to the cancelled bonds. And the pavement still good for years of service!

* * * * *

50 YEARS OF SERVICE

St. Paul, Minn., Virginia Ave., has completed a half-century of service. Neither weather nor traffic could best it. "It's still serviceable," says George M. Shepard, Chief Engineer, Dept. of Public Works of that city.

* * * * *

Baltimore, Md.—The oldest streets paved with brick still in use were put down 39 years ago, on a sand base. I rode over these early brick streets recently, and, considering that they were laid by builders of the abutting houses, I found them to be in good condition, except that the surfaces were somewhat wavy; but, no doubt, they will be used for a number of years to come.

I also inspected the first brick street laid on a concrete base by the City, under my supervision in 1901, around one of our public markets. Despite the heavy traffic, this street is in fair condition.—Frank K. Duncan, Asst. Chief Engr., Dept. of Public Works, Baltimore, Md.

A study of brick pavements in Des Moines by Iowa highway authorities concludes that service will average 36 years; Columbus, Ohio, reports over 500,000 square yards which has already averaged 45 years of service; records of individual pavements run still higher.

The costs of upkeep on brick pavements is very low—often ranges from negligible to nil. The reason: Brick resists damage from weather as well as traffic. As built today it gives a durably smooth, safe passage to any type of traffic. National Paving Brick Association, National Press Building, Washington, D. C.

BRICK

FOR NEW CONSTRUCTION OR RESURFACE JOBS

Do you mention THE AMERICAN CITY? Please do.

A NEW ONE-MAN TRAFFIC-LINE MARKER

Zone-Marking Machine Operated by One Man

The Gisco zone marker is a traffic-line marking machine made by the General Iron & Steel Corporation, 276 Lafayette Street, New York, which will paint a single traffic mark from 2 inches to 8 inches in width and is built for one-man operation with a single-lever control. Pressure for painting is obtained by pumping the paint with a specially designed pump driven by a 1-hp gas engine without gages or relief valve. The paint is agitated while the machine is being used, and approximately four-fifths of the paint is discharged back into the tank, the other fifth being pumped through a specially constructed stainless steel disc.

The operating lever does not stop the flow of paint at any time, but only changes the direction of flow. One position of the lever discharges the paint through the disc, while in the other position the flow is throughout the system in the reverse direction, thus clearing the disc and its supply line of paint and preventing drip.

Two adjustable, oscillating steel shoes determine the width of the line, giving a sharp edge. The thickness of the paint applied is determined by the operator through a simple valve. The nozzle consists of a brass fitting holding the flat stainless steel disc, which causes the paint to issue in a flat spray. The machine is mounted on three wheels, with 8-inch General tires and inner tubes, and the chassis is of all-welded steel construction. A Viking gear pump is used to deliver the paint. The paint lines are of airplane fuel-line material covered with synthetic rubber and are metal-lined and equipped with fittings for easy removal. The steel paint tank has a capacity of 6 gallons and has a concave bottom, and the top has a removable strainer.

New Refuse Truck Compresses the Load

A new garbage and refuse collection unit, the Load-Packer, comprising an all-enclosed body, and equipped with a hydraulic baler so that all kinds of bulky rubbish and garbage are compressed into a compact mass, has been announced by Gar Wood Industries, Inc., Hoist and Body Division, Detroit, Mich. When the load is compressed, water and other liquids are squeezed out, making the refuse and garbage burn quicker, effecting economy at the incinerator, according to the manufacturer.

The Load-Packer can be built in various lengths, widths and heights to fit any truck or trailer chassis. The loading trough, located close to the ground, simplifies loading by shovel or from baskets and cans. The garbage and rubbish are not exposed, odors are confined and papers cannot blow off. With this loading device it is possible to fill every available cubic foot of the body.

A Gar Wood hydraulic hoist dumps the load in the conventional manner, while another set of cylinders opens the endgate to give ample clearance. A retainer plate keeps the garbage already packed from falling back into the trough. This retainer plate is released and snaps back against the packing plate at the instant the lever operating the compressing ram is moved. When the trough is filled, the loading doors are closed and locked, becoming part of the tailgate ram. The valve-operating lever, at the rear of the body, is then moved and the two compressing jacks thrust the ram, the packing plate and the retainer plate against the garbage in the trough, cleaning it out completely and packing it solidly into the body. The packing plate and tailgate ram are then returned to their starting position, while the retainer plate is held in position by an automatic catch. Loads are compressed by means of two hydraulic cylinders which operate the ram.

A Gar Wood 10-yard Load-Packer, operated by the city of Montreal, Quebec, actually carries 16 yards compressed.

Sterling Engine Shown at N. Y. Power Show

The exhibit of the Sterling Engine Co., of Buffalo, N. Y., at the National Exposition of Power and Mechanical Engineering in New York City, December 5 to 10, consists of one of the Sterling Petrel 5-cylinder stationary engines, approved by the Associated Factory Mutual Fire Insurance Co. and the National Board of Fire Underwriters, for direct connection to fire pumps at 1,750 rpm. This engine has a 5¼-inch bore, 6-inch stroke, with a rating of 170 hp at 1,750 rpm, built with centrifugal and inertia forces balanced to make this speed practicable.

The crankshaft is counterweighted and dynamically balanced, which has been Sterling practice for twenty years. These counterweights relieve the bearing loads and enable the crankshaft to revolve centrally in the bearings. A second feature, which promotes high-speed running, is the light-weight valve employed. The inlet and exhaust valves weigh 12 ounces each. Valve-seats are inserted. The third major feature is the Sterling patented aluminum piston, which has no vertical split in the skirt and which is fitted as tightly as a cast iron piston. It is particularly successful because the expansion of aluminum is controlled, and is not allowed to exert pressure on the cylinder wall or distort the piston pin bosses. A high-pressure lubricating system is employed, including oil cooler and filter, which cool and filter all the oil before delivery to the bearings.

These engines are uniformly built with dies, jigs and fixtures so that each engine is an exact duplicate of its predecessor. After years of service, any part ordered for replacement will fit accurately without re-machining or filing.

Sterling also is displaying its crankless, internal-combustion, compression-ignition oil engine, which is rated for continuous service on 135-hp loads at 1,200 rpm. This model represents the second size developed by Sterling in this special design. It is rated for a normal load of 90 kilowatts, with ample capacity for overload. The engines are equipped with electric starters and generators, and batteries for starting. They are not characterized by a diesel knock and, owing to the absence of cylinder heads, there is comparatively little heat lost, with the result that the combustion chamber is properly and instantly warmed to correct running temperatures.

THE NEW GAR WOOD LOAD-PACKER FOR REFUSE COLLECTION

Top—General view of the body. Left—Cutaway showing the loading position with the rear doors open for filling the trough. Right—Packing; when the trough is filled, the loading doors are closed and locked, becoming part of the tailgate ram

UNFAILING UNDERGROUND ENERGY FOR AIRPORT FLOODLIGHTS

HAZARD ARMORTITE UNDERGROUND CABLE

Non-Metallic Armored

The insulation is Hazard Submarine rubber. It resists moisture. It has long life. Some of the first Armortite Cables, made over ten years ago, are still giving 100% service in airport floodlighting, boundary and runway lighting work.

The protective covering of leather-like non-metallic Armortite tape with a cushion of asphalted jute underneath and with outer coverings of sealing compound and tapes provides sure protection from injury. Soil acids, alkalis or moisture do not affect this thoroughly efficient cable.

Samples and full data will gladly be sent to anyone interested.

HAZARD INSULATED WIRE WORKS

DIVISION OF THE OKONITE CO.

WORKS: WILKES-BARRE, PENNSYLVANIA

New York Chicago Philadelphia Atlanta Pittsburgh Buffalo Boston Detroit
Seattle Dallas Washington San Francisco St. Louis Los Angeles

DONALD A. ROBISON, GENERAL SALES MANAGER, CATERPILLAR TRACTOR CO

Caterpillar Treasurer Named Sales Chief

The post of General Sales Manager of Caterpillar Tractor Co., Peoria, Ill., has been given to Donald A. Robison, Treasurer of the company, and W. J. McBrian, Domestic Credit Manager, has been promoted to head of the Treasury Department.

Mr. Robison joined the company's Western Division at San Leandro, Calif., in 1926, working in the parts storeroom, from which he worked up to become Credit Manager of the Western Division. He went to the Peoria offices in 1930 and three years later became Assistant Treasurer and in 1937 was elevated to Treasurer.

New Line of Trucks Announced by Dodge

Streamlined from bumper to bumper and incorporating advanced engineering features made possible by a giant new truck plant, Dodge Truck Division of Chrysler Corporation, Detroit, Mich., has announced its 1939 models. A radically changed grille and a sloping, one-piece V-shaped windshield that opens are the front-end changes. A diesel truck is announced in the 3-ton line, with a new Dodge-built diesel engine.

This year Dodge offers new Dual-Purpose models in 1½-ton heavy-duty and 2-ton models for use where unusual flexibility is required. A two-speed axle installed in the factory and available in two combinations of ratios, gives each model at least eight speeds forward and two in reverse.

In addition to the new streamline styling, new features common to all 1939 Dodge trucks are: larger cabs; running-board splash shields integral with the cabs; increased seat heights; windshields located for improved vision; frame side-rails extended to support a new channel-type bumper without the use of intermediate brackets; and a new type of stronger steel used in the trucks.

The features of the ½-ton, ¾-ton, 1-ton, 1½-ton, 2-ton and 3-ton models are all to the advantage of the buyer and are stated in detail in literature which may be secured direct from Dodge Truck Division, Chrysler Corporation, Detroit, Mich., by mentioning this item or through THE AMERICAN CITY.

New Testing Service for Leaks in Tanks

A new, accurate seam testing service has been inaugurated by the American Pipe & Steel Corporation, Alhambra, Calif. It is a vacuum method that can be adapted to locating leaks in the bottoms and decks of tanks and pipelines and involves a minimum of time and expense. The patented device used in the American Seam Testing Service is an air-tight, rectangular shaped box, equipped with a vacuum gage. The top of the box is covered with glass, and soft rubber strips are mounted around the base.

When tests are to be made, a section of the seam is covered with a thick solution of soapsuds. The device is placed over the covered area, and a strong vacuum is created by means of a suction pump. The suction compresses the soft rubber base of the device so that air is sealed out. Any imperfections in the seam within the area covered by the tester will permit the inflow of air, which in turn causes clusters of soap bubbles to appear at that particular point. Detected through the glass top of the seam tester, these bubbles instantly indicate the presence of a leak.

Inspection of most tanks can be made in from one to two hours, without costly delays. In the event that new tanks are being tested, calkers and welders are able to work at a much greater speed, knowing that pinholes will be quickly detected and adjusted. Bottoms may be laid in a permanent position without risk of causing fractures, as is often the case when they are set up on horses and then lowered into position.

Meter Company to Sell Simple Pipe Coupling

The Pittsburgh Equitable Meter Co., Pittsburgh, Pa., has been appointed sole distributor for Raybould couplings and fittings manufactured by the Raybould Coupling Co., Meadville, Pa. Grover E. Seaberg, Manager of the Coupling and Fitting Division, will direct sales for the meter company.

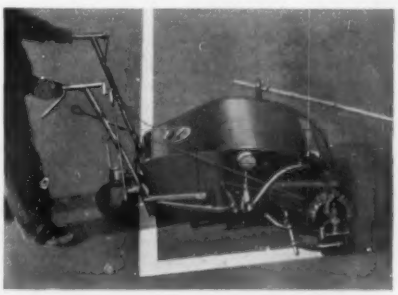
The Raybould coupling, manufactured in sizes for ½- through 12-inch pipe generally used in the water-works field, consists of two resilient compression rings, metal bushed on either end, encased in two flanges or follower rings which bear against a center ring acting as a spacer between the flanges. The compression rings provide the sealing medium, while the flanges sustain all the mechanical forces applied in tightening the coupling. In sizes smaller than 3-inch the flanges consist of two compression nuts, and the coupling is fastened by tightening these nuts on a threaded center ring. The larger sizes use long track head bolts and nuts to draw up the two flanges.

This coupling is designed for high pressures; it is made of materials which will not deteriorate in contact with the contents of the pipe; the joint is not affected by normal expansion, contraction or deflection of the pipe; small-diameter or unsymmetrical pipe does not affect the coupling joint, it requires few bolts, and there are only three major parts to handle in the field assembly, with the exception of the bolts. The manufacturer states that there is a minimum millivolt drop between the pipe and the coupling, which eliminates electrolytic action. Full details regarding this joint may be secured from Pittsburgh Equitable Meter Co., 400 North Lexington Avenue, Pittsburgh, Pa.

Koppers Divisions Merged at Baltimore

Koppers Company's Western Gas Division, Fort Wayne, Ind., has been absorbed by its Bartlett-Hayward Division, Baltimore, Md. Sales and engineering activities on gate-valves at Fort Wayne were moved on December 1 to Baltimore, where they have been consolidated with the Bartlett-Hayward organization. This move is another step in the process of corporate simplification which was started by Koppers Company two years ago.

M-B STREET MARKER



It's SELF-PROPELLING!

Fast, Compact Unit for Striping Street Center Lines, Diagonal or Parallel Parking, Cross Walks, Safety Zones, Etc.

Now you can mark streets the easy M-B way. Provides clean, well-defined lines with no drippings or splashed edges. Operates on any type of hard-surfaced roads, even where irregularities are encountered. Marker is equipped with exhaust blower, adjustable paint box, spray nozzle and guide for marking. It cleans as it sprays as it brushes.

Saves 75% of Marking Costs

Easy, one-man motorcycle-grip control for painting, steering and speed. No compressor required. Low initial cost. Practically no upkeep. Keeps men from dangerous hand-marking jobs. Reduces insurance premiums. Write for bulletin.

M-B Street Marker striping line for parallel parking.

MEILI-BLUMBERG CORP.

Dept. A-12
New Holstein, Wisconsin

MEILI-BLUMBERG

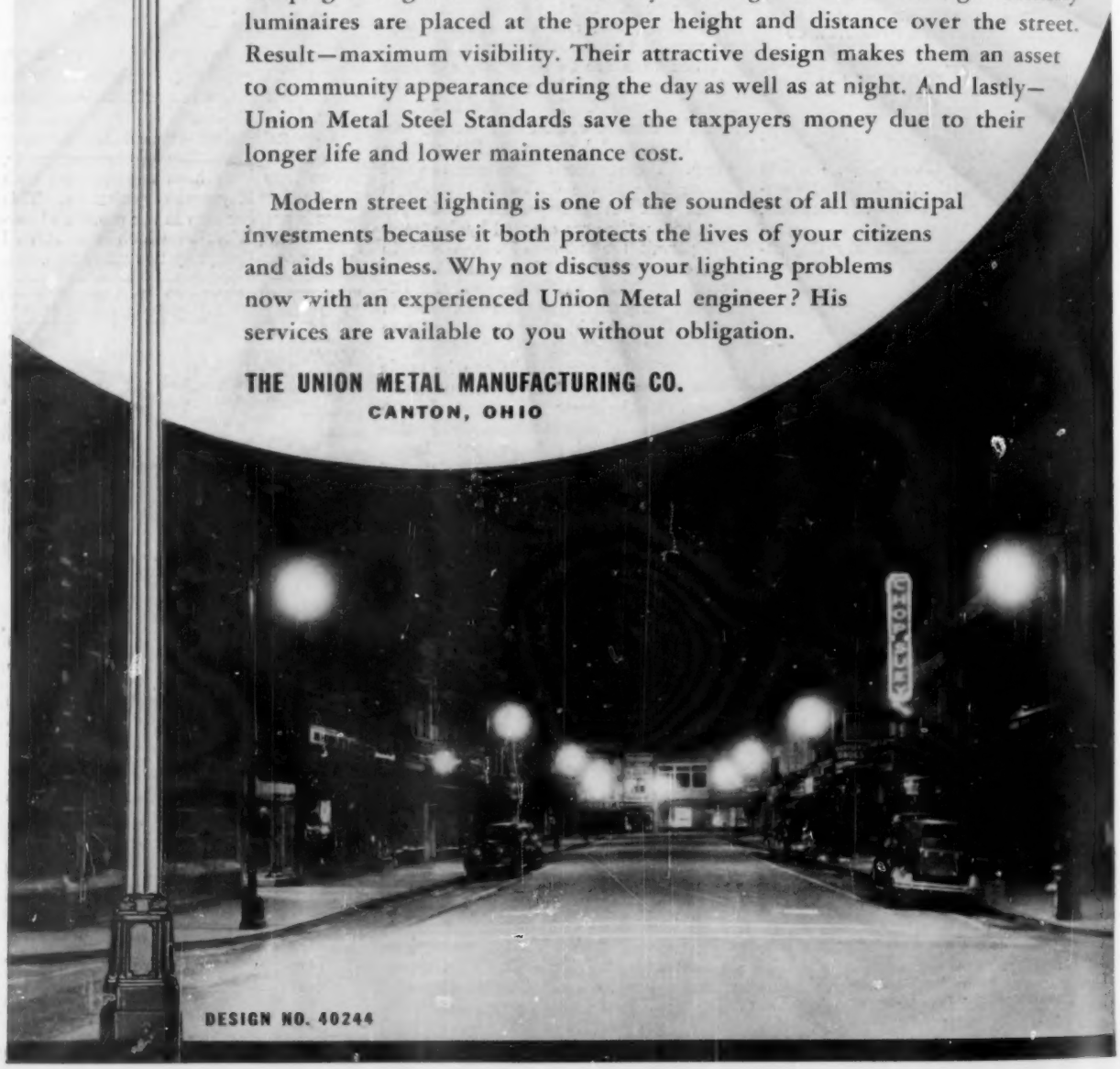
KINGSTON, N. Y. Stimulates *Sales and Safety* with Modern Street Lighting

KINGSTON, N. Y., wanted busier and safer streets after dark. It got both with the installation of a modern street lighting system.

Union Metal Steel Lighting Standards played an important part in this campaign for greater sales and safety. Through their use the high intensity luminaires are placed at the proper height and distance over the street. Result—maximum visibility. Their attractive design makes them an asset to community appearance during the day as well as at night. And lastly—Union Metal Steel Standards save the taxpayers money due to their longer life and lower maintenance cost.

Modern street lighting is one of the soundest of all municipal investments because it both protects the lives of your citizens and aids business. Why not discuss your lighting problems now with an experienced Union Metal engineer? His services are available to you without obligation.

THE UNION METAL MANUFACTURING CO.
CANTON, OHIO



DESIGN NO. 40244

Outdoor Lighting

A Section of THE AMERICAN CITY
Devoted to the Lighting of Streets, Highways, Bridges, Airports, Athletic Fields and Parks and the Floodlighting of Public Buildings

A City Relights 100% in One Year

ONE year ago The West Penn Power Co. modernized the street lighting on West Otterman Street (Lincoln Highway), Greensburg, Pa. The contrast with the rest of the city was astounding, and the electric company followed up with a painstaking report to the City Council on "A Progressive Planned Street-Lighting Program for the City of Greensburg."

These two brilliant offensives were successful beyond even the hopes of the company, whose plan set forth improvements to extend over a period of five years. The City Council on its own initiative approved the plan in its entirety for immediate consummation. A five-year program of city street lighting was thus put through in one year to a glamorous opening on the night of September 29.

Citizens of all degrees and occupations are solidly in favor of the new color and gleam of night life in Greensburg. Although it adds 65 cents per capita per year to the former cost of $1.30, it also adds 153,000, or 57 per cent, more source candlepower, and, through the use of modern equipment and engineering planning, places 103 per cent more illumination down on the streets. This was achieved by selecting the correct number of lamps, sizes, locations, mounting height, spacings, type of suspension over the roadway and modern equipment. There are 1,000 lamps now, where a year ago there were 611.

Business in Greensburg is probably no better than in any other community, yet this remarkable job of complete relighting has been accomplished in the face of hard times in the space of one year. Why did they do it?

City Clerk Mary Lou Bruning says: "With the old lighting, girls who worked late required police escort home. Under the new lighting they feel no hesitancy in walking alone to their homes."

John Lee, restaurateur, with an already attractive store front, says: "I get a lot of transient business in good times. I believe that a great many additional cars will now stop at night and the owners will park the cars with the feeling that they will be safe. Next summer I will erect a new store front, and will air-condition and put out an "Air Conditioned" sign. I would not do this except for the new street lighting."

These are only two indications as to why the new lighting is popular. It provides protection against traffic accidents and the criminal. It is expected to increase business and real estate values. It is an aid to both the Police and the Fire Department. It vastly facilitates driving, and thus eases traffic and improves mass transportation.

While these are sufficient reasons for modernizing the night appearance of a city in keeping with modern night activities, there are still better reasons for the universal acclaim of the Greensburg street-lighting system.

True, the newspapers are for it, but it was an already popular cause.

The big reason was the boldness of the City Council in adopting a plan for the *complete* relighting of the city. No street, and hardly an alley, has been neglected. Nobody has been left out. Everybody's property is benefited. The drab, discouraged districts are illuminated with the same care and comparative prodigality and with the same types of modern luminaires as the best residential districts. No matter who lives where, he—and she—may walk all the way home at any hour along safely lighted streets. Courage *and* brains on the part of the Council carried the day into the night, to the well-being and satisfaction of 16,000 inhabitants and several thousand motorists passing through—or reaching bright, cheery Greensburg and stopping for dinner or the night. One can almost hear those night drivers saying: "We won't find any better place than this."

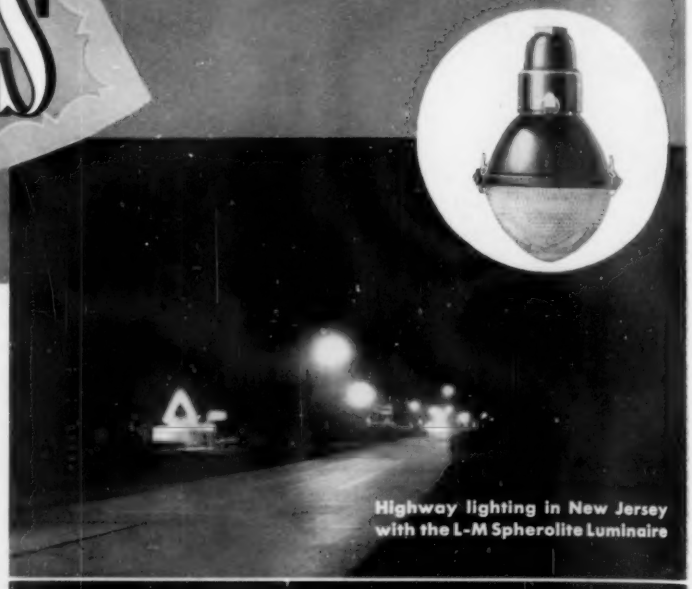
The streets were listed under seven classifications. The primary business streets are lighted with units in opposite pairs at an average spacing of 125 feet. The mounting height is 22 feet. The two main streets employ 10,000-lumen lamps, with 5,000-lumen (special lamp) lamps on secondary business streets. Additional lamps are grouped at important intersections, the four chief intersections being lighted by eight 5,000-lumen lamps, and five other intersections by six 5,000-lumen lamps.

Heavy thoroughfares other than business streets employ 5,000-lumen lamps at an average spacing of 110 feet. Medium-traffic thoroughfares also employ the 5,000-lumen lamp, but at an average spacing of 200 feet. Light-traffic thoroughfares employ chiefly the 2,500-lumen lamp at an average spacing of 200 feet, though the 5,000-lumen lamp is employed on light-traffic thoroughfares which approximate the next higher classification. Westinghouse Reflectolux Junior pendant luminaires are used on all traffic thoroughfares and business streets.

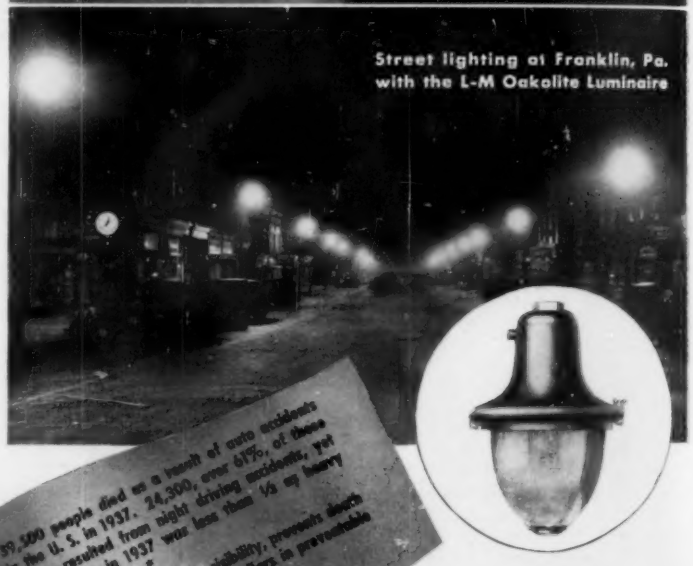
Residential streets chiefly employ the 2,500-lumen lamp in open-type wave reflector of Alzak-Aluminum at a mounting height of 20 feet and an average spacing of 250 feet. While the shading type of radial-wave reflector is occasionally used, its use is not encouraged, for the light is wanted on lawns and driveways and front porches in order to afford the best police protection. Says Police Chief George Westover: "Already, night-time stickups have been eliminated on our newly lighted streets; but I think the greatest protection value lies in the lighting of the alleys. That's the best single weapon any police department can have, because with it you take away the criminal's hiding place. Previously, 75 per cent of our stickups occurred in alleys when cars were put away for the night."

In the Reflectolux Junior luminaires, employed on the traffic arteries and business streets, the lamp is placed high in the aluminum reflector, completely shielded from the eye of the observer, the glass globes diffusing the light directed downward by the reflector. A supplementary system of reflectors inside the globe provides an asymmetric distribution, directing the light in larger measure up and down the street, and hence utilizing the light more effectively. Thus the central idea of the modern street-lighting system is to place more light on the street, making objects visible at greater distances and generally increasing visibility without correspondingly increasing the cost. This is accomplished by rendering the road surface bright, so directing the light from the luminaire that the reflection from the road surface is toward the automobile driver and objects are clearly seen as silhouettes against the bright road surface beyond.

LIGHTING LIKE THIS SAVES DOLLARS AS WELL AS LIVES



Highway lighting in New Jersey with the L-M Spherolite Luminaire



Street lighting at Franklin, Pa. with the L-M Oakolite Luminaire

Guarding you from sudden death is only a part of the service good street and highway lighting gives. Good lighting protects your pocketbook, too. Surveys prove that losses due to traffic accidents, figured in dollars and cents alone, amount to far more than the cost of installing and maintaining efficient lighting equipment. That is why economy minded states and municipalities are speeding up lighting programs.

Line Material Company offers you Street and Highway Lighting Equipment that protects lives and pocketbooks to the fullest extent. Both driver and pedestrian see clearly under L-M Lighting; danger of fatal and costly traffic accidents is reduced to minimum. In length of service and low maintenance cost L-M lighting equipment further assures a maximum return on every lighting dollar you invest.

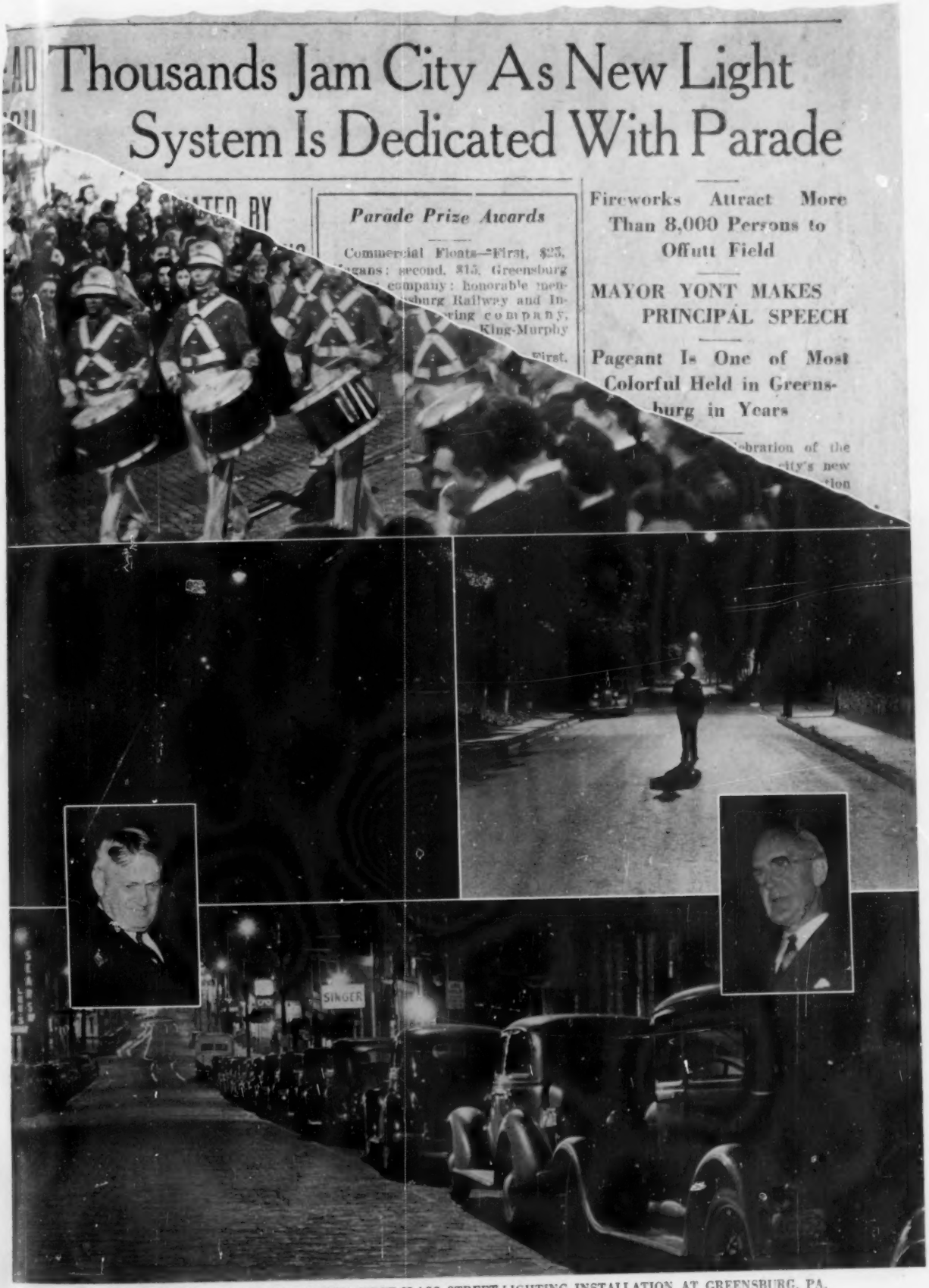
facts

39,500 people died as a result of auto accidents in the U. S. in 1937. 24,300, over 61%, of these deaths resulted from night driving accidents, yet as daylight traffic.* night traffic in 1937 was less than ⅓ as heavy

Good lighting giving clear visibility, prevents death and injury, saves millions of dollars in preventable accident losses.

*Figures of National Safety Council

LINE MATERIAL CO.



Thousands Jam City As New Light System Is Dedicated With Parade

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The inserts left and right are Mayor Harry N. Yont and President Harry L. Mitchell of the West Penn Power Co.

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By J. J. TYNAN
Atlantic City Electric Co., N. J.

Courtesy of Atlantic City Chamber of Commerce

GAILY LIGHTED CHRISTMAS STOCKING EIGHT STORIES HIGH

THE knowledge gained of the value of lighting in reducing night accidents on the famed White Horse Pike led the Department of Public Safety of Atlantic City into making a careful investigation of traffic fatalities within city limits. An analysis of the statistics of the total number of traffic fatalities revealed that by far the largest percentage of fatal accidents occur at night.

In the Chelsea section of Atlantic City, which is essentially a residential neighborhood, Atlantic Avenue carried the greatest volume of traffic. The main mode of transportation is an electric trolley-car line.

Accidents and death in this part of the city have occurred at times when the motorist was unable to see persons standing near the car tracks waiting for the trolley. With the old lighting system, a person in dark clothing was practically invisible 200 feet away.

The old system consisted of 6,000-lumen lamps in old-type diffusing globes without refractor or reflector to conserve and distribute the light. The lamps were hung from 10-foot brackets with light source 19 feet above roadway. Spacing was usually 150 feet staggered.

These luminaires were replaced by the General Electric 79R design incorporating Holophane refractor and reflector, using the same size lamps on the 10-foot arms but mounted 25 feet above the street. The hemispherical reflector catches the upward rays of light, redirecting them toward the street, while the refractor globe distributes the light up and down the street, protecting the motorist from discomfort and glare.

It's Time to Light Up

ALTHOUGH street-lighting service is one of the elder members in the family of municipal services, it is the least standardized. Evidence can be found in the wide variation of the types of equipment, sizes of lamps used, height at which lamps are mounted over the street, maintenance methods, and the number of lamps installed in a given length of street in various municipalities, notwithstanding the fact that street uses and traffic characteristics are essentially the same and the purposes identical.

This situation is the result of the lack of proper planning and the incorrect application of the fundamental principles of the science and art of street illumination in the past. In other words, generally speaking, our street-lighting systems "just growed." Unless these systems are properly planned, installed, operated and maintained, they will not function efficiently. Street lighting has never kept up to traffic requirements and the developing use of streets due to heavily increasing motor-vehicle traffic, now totaling 30,000,000 vehicles.

It has been reliably estimated that in 1930 the *amount* of street lighting was about one-half that needed to provide safe visibility at that time. It is probable that the need today is equally great.

Our municipal governing officials and their responsible engineers must discover the true value of adequately lighted streets. Then improvement will follow as a comprehensive modern plan. Such a plan calls for a survey and zoning of the municipality and the design of an *entire* lighting system that gives due regard to types of streets and their traffic, the color of street-paving surfaces, the types of buildings along the street, and the presence or absence of trees.

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GREATER VISIBILITY HAS ELIMINATED ACCIDENT ZONES ON THIS ATLANTIC CITY STREET
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Index of Advertisers

*Abrams Aerial Survey Corp. 121
*Allis-Chalmers Mfg. Co. 22, 80
Ambassador Hotel 26
Amer. Tel. & Tel Co 6
Architects, Landscape 120, 121
*Armco Culvert Mfrs. Assn 25
*Austin-Western Road Machy. Co., The 78

Badger Meter Mfg. Co 31
Bellevue-Stratford Hotel 30
Buffalo Meter Co 20
*Buffalo Pumps, Inc 24
Burroughs Adding Machine Co 102

*Calcium Chloride Assn 100
Cast Iron Pipe Research Assn 16
Caterpillar Tractor Co 33
Chicago Bridge & Iron Co 8
*Cleminshaw Co., The J. M 121
*Cochrane Corp 90
*Cole Mfg. Co., R. D 92
*Columbia Alkali Corp., The 100
Connery Construction Co 90
Consulting Engineers 120, 121

*Dow Chemical Co., The 100

*Eddy Valve Co 24
Engineers, Consulting 120, 121
*Expanding Sewer Machine Co 30

*Farnan Brass Works Co., The 24
Filtration Equip. Corp 32
Ford Meter Box Co 92
Ford Motor Co 106

*Gamewell Co., The 14
*Gascoigne & Associates 120
General Motors Truck & Coach Division 104
Giant Mfg. Co 94
*Good Roads Machy. Corp 96
Graybar Electric Co 118

*Harley-Davidson Motor Co 108
Hays Mfg. Co 28
*Hazard Insulated Wire Works 112
Heil Co., The 94
*Hersey Mfg. Co 29
Hetherington & Berner, Inc 94
Hewett System, Wm. S 24
*Homelite Corp 30
Hydraulic Development Corp 32

Imperial Hotel 28

Johns-Manville 19
*Johnson City Fdry. & Mach. Co 92

*Karpark Corporation 76
*Kennedy Valve Mfg. Co., The 30
Kupferle Foundry Co., John C 88

Laboratories, Testing 120, 121
Layne & Bowler, Inc 18
Line Material Co 116
*Littleford Bros 32
Lock Joint Pipe Co 24
*Ludlow Valve Mfg. Co 88

*M. & H. Valve & Fittings Co 92
Manistee Iron Works Co 28
*Mathieson Alkali Works (Inc.) 10
Meili-Blumberg Corp 113
*Metcalf & Eddy 120
*Michigan Alkali Co 100
*Mohawk Asphalt Heater Co 96
*Morris Machine Works 30
*Mueller Brass Co 84

*National Meter Co 32
National Paving Brick Assn 110
*National Water Main Cleaning Co . . 88
*Neptune Meter Co 34
*Nordberg Mfg. Co 12

Outdoor Lighting Section 115

Pitometer Co., The 120
*Pittsburgh-Des Moines Steel Co 90
*Pittsburgh Equitable Meter Co 4
*Pittsburgh Testing Laboratory 121
Pomona Pump Co 26
Prismo Safety Corp 96
Proportioneers, Inc 92

Quinn Wire & Iron Works 88

Rensselaer Valve Co 90

Sanitary Engineers 120, 121
*Simplex Valve & Meter Co 92
Skinner Irrigation Co., The 96
Smith & Co., Inc., Gordon 94
*Smith Mfg. Co., The A. P 21
*Solvay Sales Corp 100
Sterling Engine Co 28
*Streamline Pipe & Fittings Div 84

*Texas Company . . . . . Second Cover
*Turbine Sewer Machine Co., Inc 94

*Union Metal Mfg. Co., The 114
*U. S. Pipe & Foundry Co 23

Vogt Mfg. Co., Inc 90

Wald Co., John R., Division of 96
*Wallace & Tiernan Co . . . . . Back Cover
Warren Foundry & Pipe Corp 26
*Western Electric Co 98
White Mfg. Co 94
*Wood Co., R. D 82
Wood-Regan Instrument Co., Inc. Third Cover

Youngstown Sheet & Tube Co., The. 27

The Municipal Index

*** In addition to the advertisements which will be found in this issue of THE AMERICAN CITY on the pages as indicated above, condensed catalogs of those marked * will be found in THE MUNICIPAL INDEX, the big reference volume for city, town and county officials published by THE AMERICAN CITY, 470 Fourth Ave., New York. If you do not have a copy of THE MUNICIPAL INDEX, please write to the publishers.**

The Municipal Index

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WRICO Pens are specially designed for use with WRICO Guides and are the product of the highest grade of instrument manufacture. They are used in an easy and natural position.

Complete sets in beautifully finished mahogany cabinets, also individual Guides and Pens, are carried in stock by dealers everywhere. All sizes and styles are available.

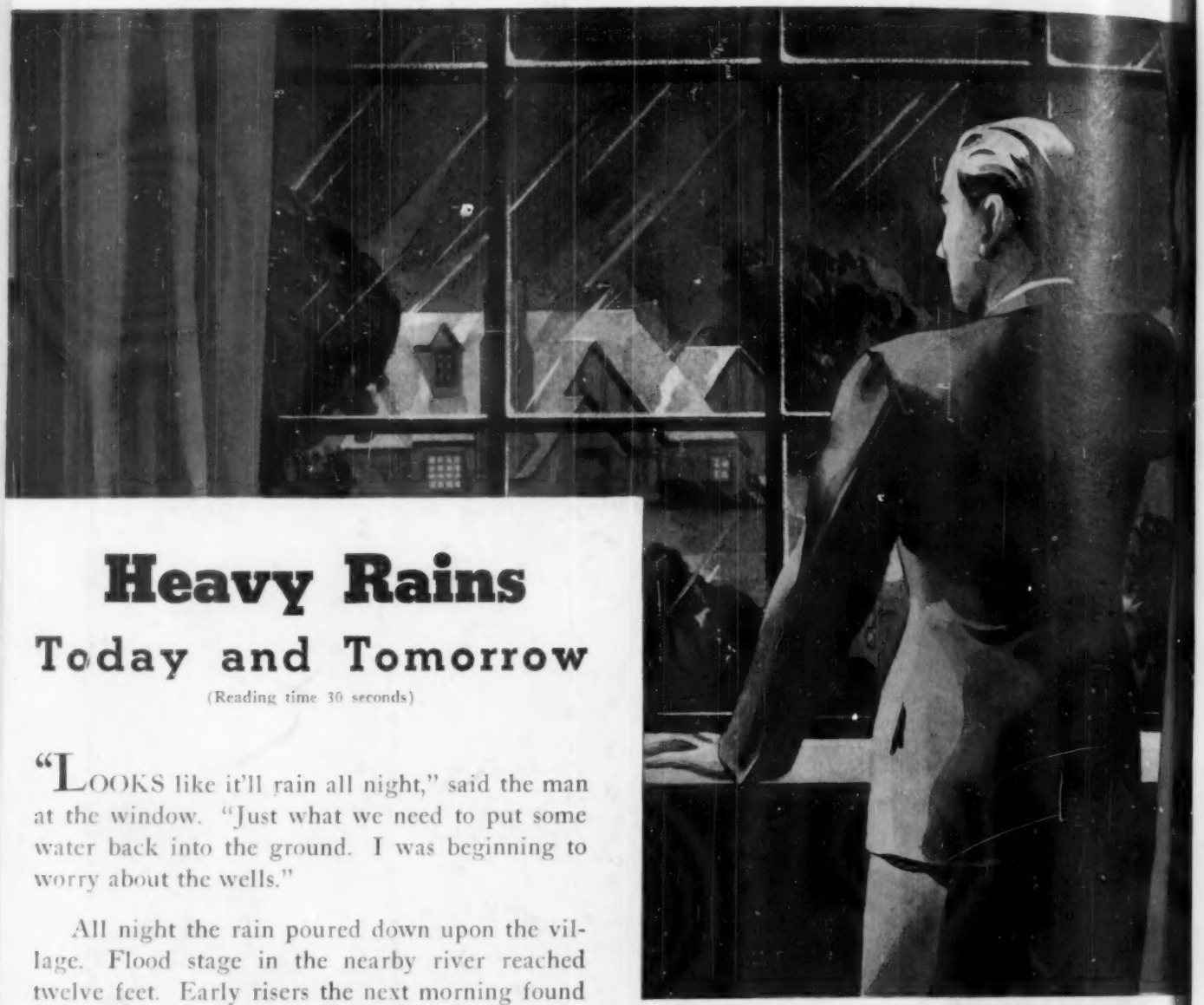
Standardize your lettering now with WRICO. If your dealer can not supply you, write us for a complete catalog and price list.

THE WOOD-REGAN INSTRUMENT CO., INC.

Factory and General Offices . . . Nutley, New Jersey

SOLE EXPORT REPRESENTATIVES: WONHAM, INC.,
44 Whitehall St., New York Victoria St., London
Cable Address: "STAPELY", New York

WRICO DIRECT LETTERING



Heavy Rains
Today and Tomorrow

(Reading time 30 seconds)

"LOOKS like it'll rain all night," said the man at the window. "Just what we need to put some water back into the ground. I was beginning to worry about the wells."

All night the rain poured down upon the village. Flood stage in the nearby river reached twelve feet. Early risers the next morning found the tap water slightly muddy—but they did not know that even then a forgotten drain was pouring contaminated river water into the well water drinking supply. Water borne disease swept the village. Dysentery, then typhoid—many people died.

Chlorination would have prevented this heart breaking epidemic as well as dozens of others caused by trust in unprotected well water supplies. Dependably and accurately controlled with W&T equipment, the cost of chlorination is less than a penny per person per year. Before chance contamination threatens your supply, turn to chlorination. Regardless of the size of your plant, there is a W&T Chlorinator designed specifically to meet your requirements. Ask for complete information today.

"The Only Safe Water Is a Sterilized Water."

Wallace & Tiernan Co., Inc., Manufacturers of Chlorine and Ammonia Control Apparatus, Newark, New Jersey, Branches in Principal Cities.

* Based upon an actual published experience.

THE AMERICAN CITY

Volumes 54-55

Jan. 1939-Dec. 1940

REEL 13

University Microfilms, Ann Arbor, Michigan, 1957

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